

EWEB Source Water Protection Project: Land Use Decisions Analysis

Final Report

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Eugene Water and Electric Board

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September 2009

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Table of Contents

CHAPTER 1 INTRODUCTION	1
Background.....	1
Purpose	2
Organization of this report.....	2
CHAPTER 2 FRAMEWORK FOR THE LAND USE DECISIONS ANALYSIS.....	4
Context for the land use decisions analysis	4
Project approach.....	5
Case study methods.....	6
CHAPTER 3 HISTORICAL DEVELOPMENT ACTIVITY IN THE MCKENZIE RIVER BASIN	10
Historical land use and development patterns	10
Parcelization.....	10
Current land-use	11
Zoning.....	12
Historical residential development trends	13
Development in relation to the river.....	14
Proximity of dwellings to the river.....	14
Proximity of dwellings to the floodplain.....	16
CHAPTER 4 ANALYSIS OF RECENT DEVELOPMENT ACTIVITY.....	17
Approach and limitations.....	17
Development activity.....	17
Land divisions.....	20
Residential building permits	20
Permit activity in riparian areas.....	21
Permit activity in floodplains and floodways.....	23
Permit activity for septic systems	25
Code enforcement	27
CHAPTER 5 KEY FINDINGS AND CONCLUSIONS	28
Case study analysis	28
Riparian Modifications.....	29
Long-term impacts and demand on county resources.....	29
Vegetation removal standards.....	30
Legal lot verification.....	30

Road and riparian setbacks.....	31
Agency Review	31
Floodplain Development.....	31
Long-term impacts and demand on county resources.....	32
Disconnect between Federal, State and Local Regulations.....	32
Regulation of septic systems in floodplains.....	33
Septic Systems	33
Minimal documentation of septic system applications.....	33
Consideration of adjacent land uses.....	33
Sensitive Soils and Slopes	34
Limited regulation in relation to soils and slopes.....	34
Impervious Surfaces.....	35
Limited regulation in relation to Impervious Surfaces	35
APPENDIX A CASE STUDIES	37
APPENDIX B PERMIT TYPE CODES	73

Chapter 1

Introduction

The McKenzie River is the sole source of drinking water for more than 250,000 people. In 2001, the Eugene Water and Electric Board (EWEB) established a source water protection program to evaluate and mitigate water quality risks. The overall concept of source water protection is to have the ability to measure the balance between watershed health and human use over time and implement actions that maintain a healthy balance for production of exceptional water quality.

EWEB wants to better understand the implications of development activity in the McKenzie River Basin on water quality. This project includes an analysis of the Lane County Development Code, how the code is interpreted and applied to development, and the implications for water quality as part of EWEB's broader source water protection initiative. This report summarizes the results of a series of case studies on best management practices and model ordinances that focus on drinking water quality.

Background

In 2001, EWEB prepared a drinking water source protection plan, which includes a risk assessment of all potential threats to Eugene's drinking water. To implement the plan, EWEB launched a program to protect the high water quality of the McKenzie River.

EWEB initiated a research program to better understand other threats and vulnerabilities to the McKenzie. EWEB contracted with the University of Oregon's Community Planning Workshop (CPW) to conduct a review of the Lane County Development Code to evaluate which regulations have implications for source water protection.

The intent of this work is to help EWEB understand the long-term implications of land-use on water quality in the McKenzie Basin and to develop a set of programmatic recommendations on how to best manage those impacts. The project includes four key deliverables:

1. Analysis of historical development patterns. This product is presented in the form of a "risk atlas" which contains a series of maps showing the location of development in the context of key physical features of the McKenzie River.

2. Analysis of development applications. CPW conducted a series of case studies to document how Lane County interprets specific sections of the Lane County Development Code and if the code creates risks and vulnerabilities to water quality.
3. Best management practices and model ordinances. This product identifies approaches that other jurisdictions use to manage source water quality.
4. Action plan. This document summarizes CPW's research into a set of conclusions and potential actions.

Purpose

The purpose of the land use decisions analysis is threefold: (1) determine how the applicable sections of the Lane Development Code have been applied to selected development; (2) identify the implications of development activity on the ground; and (3) verify data obtained from GIS and tabular sources. Building from the findings of a preliminary review of Lane Development Code, CPW focused the decisions analysis on specific development applications with implications for water quality. CPW sought to identify whether the code itself must be amended to better protect water quality, or whether discretionary practices have circumvented the code as written. The findings from the decisions analysis are meant to inform EWEB's source water protection strategy for the McKenzie River.

Organization of this report

The remainder of this report is organized as follows:

Chapter 2: Framework for the Land Use Decisions Analysis provides an overview of the methods CPW used to conduct the analysis.

Chapter 3: Land Use Activities in the McKenzie River Basin provides a summary of land use and development for the study area. It is based on analysis included in the Risk Atlas (under separate cover) and the permit database provided by Lane County Land Management.

Chapter 4: Analysis of Recent Development Activity summarizes key findings from CPW's review of land use decisions that pose a potential risk to water quality in the McKenzie River Basin.

Chapter 5: Key findings summarizes the results and key findings of CPW's research. The key findings are organized by topic area:

- Riparian modifications
- Development in the floodplain
- Septic system installation and sewage disposal
- Construction on sensitive soils and slopes
- Creation of impervious surfaces

Appendix A: Land Use Decision Case Study Summaries contains two-page summaries for 17 case studies used to inform the key findings.

Appendix B: Land Use Permit Types presents a table of permit types CPW reviewed from the Lane County Land Management permit database.

Chapter 2

Framework for the Land Use Decisions Analysis

This chapter presents the framework for the land use decisions analysis. It begins with an overview of the key issues related to water quality in the McKenzie River Basin. It then summarizes the results of CPW's preliminary research into the Lane County Development Code and how it relates to land use and water quality. It concludes with a discussion of the approach and methods used for the land use decisions analysis.

Context for the land use decisions analysis

This project is a component of EWEB's overall source water protection strategy. A key component of that strategy is a comprehensive research program to better understand other threats and vulnerabilities to the McKenzie, which includes the following elements:

- Develop GIS database that takes land use variance requests for development in the McKenzie and populate with variance requests.
- Update building permit requests in GIS to show construction/development activity.
- Review existing land use/development ordinances/rules in Lane County to evaluate which rules are detrimental to source protection goals and which could have potential benefits. Evaluate how ordinances/rules that have potential benefits to source protection goals are carried out in practice.
- Conduct aerial photo analysis of McKenzie watershed from 2000 to 2008 to map development and identify visual impacts. Correlate with land use variance requests to determine if potential granting variances led to impacts and look at cumulative impacts of development and variance approvals.
- Map potential buildable land in drinking water source areas to get idea of potential build-out (develop worst case development potential).
- Work with the Springfield Utility Board (SUB) and the Lane Council of Governments (LCOG) to develop educational materials around

importance of protecting source areas, doing outreach to developers and the public, providing overlay maps to county planners, developing a notification system with source areas for new development, and developing a Land Management toolkit.

- Evaluate impacts from development such as increased nutrients, organics, bacteria, personal care products, etc. from septic cluster areas (currently being done in McKenzie using grant funds) and storm runoff of fertilizers, pesticides, oil/grease, etc from development (currently being modeled by OSU) to better articulate with factual data the potential impacts to drinking water from development (especially higher density development).
- Evaluate strategies to mitigate potential threats to drinking water source areas from development such as overlay protection zones, strengthening ordinances, promoting and encouraging smart/green building design and site layout, and a dialogue with County planners and developers.
- Establish monitoring of development activities to develop coordinated responses to proposed development that could be detrimental to source areas.

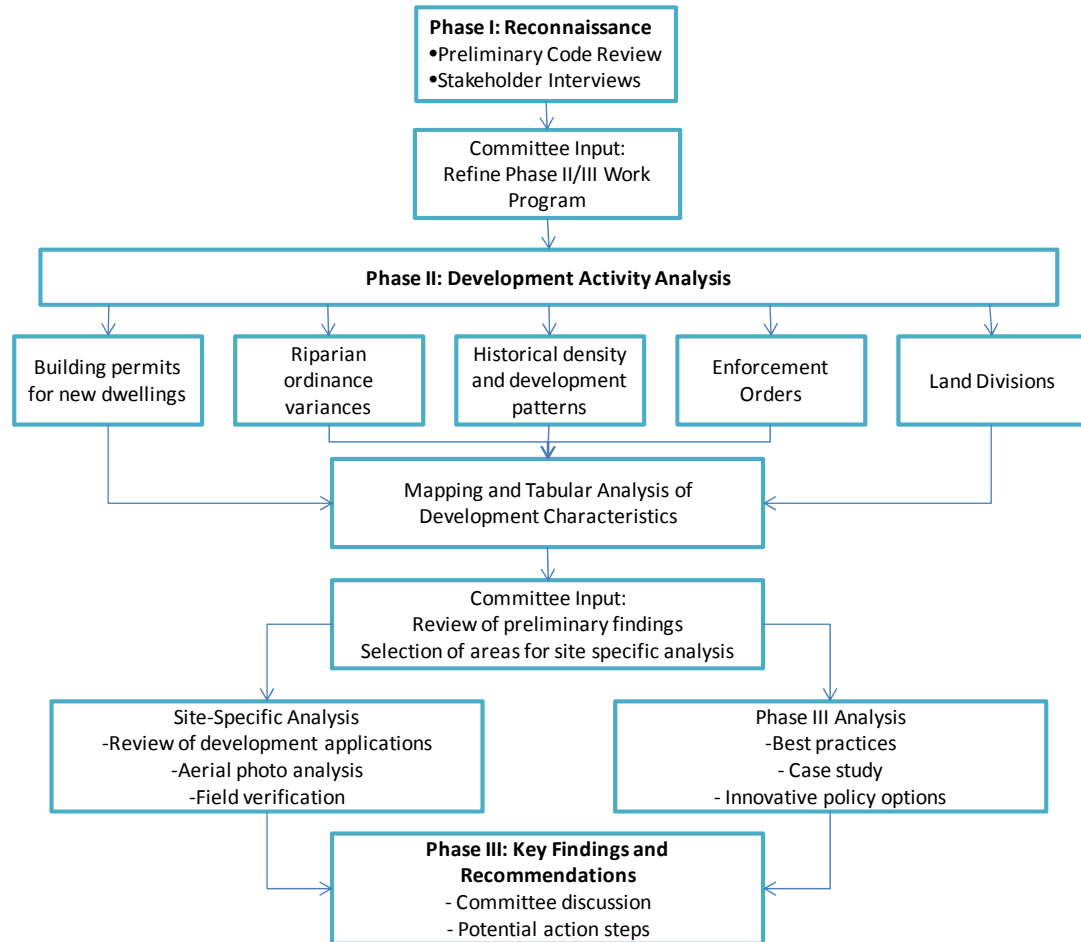
Project approach

Figure 1 summarizes the overall project approach and shows that the development activity analysis played a very prominent role in our research. CPW organized the three elements of our research into phases; Phase I was a scoping or reconnaissance phase; Phase II was the bulk of the development review; and Phase III addressed best practices and model ordinances from other jurisdictions. The key elements of CPW's research include:

- Lane County Code analysis
- Development impacts analysis
- Aerial photo analysis
- Best practices/policy implications

This report addresses the first three issues; the best practices/policy implications research is summarized in a separate report. This reflects our assessment that the best way to understand water quality implications of the Lane County Development Code is to understand the location, rate, and scale of development.

Figure 1. Project approach



Case study methods

CPW conducted a series of 17 case studies detailing how specific sections of the Lane Development Code were applied to individual properties in the McKenzie River Basin study area¹. The analysis included a variety of permit types and includes review of decisions in the following Lane Development Code sections:

- Enforcement (Chapters 9, 11, 15 & 16)
- Variance/Modification procedures (Chapters 11 & 16)
- Development standards (Chapter 16)

¹ The study area for this project consisted of the following lands in the McKenzie River Watershed: lands upriver from the Hayden Bridge intake that are outside of the Eugene-Springfield Metropolitan Urban Growth Boundary (UGB) and are not zoned F-1 (Non-Impacted Forest Lands Zone).

- Riparian regulations (Chapter 16)
- Site Review/Cluster Subdivision standards (Chapter 16)

Lane County Land Management staff provided CPW with a database of permit applications which we used to summarize development activity in the base and identify types of permits to review. The permit database included information for land use applications, building permits, septic installation permits, and riparian modification permits. Due to the volume of permit activity in the Study Area (CPW identified nearly 13,000 individual permits in the database), CPW conducted a preliminary evaluation to identify target tax lots.

CPW used a screening approach to identify the case studies. The 17 case studies are based on individual tax lots each of which may have multiple associated permit applications. CPW prioritized permit types based on development activity that poses the greatest potential risk to water quality. High priority tax lots evaluated in the initial screening were located within the floodway or 100 feet of the river's edge. To ensure adequate geographic representation, CPW identified land use decisions and permit activity from each sub-focus area within the basin to determine whether variation in the type and number of permit decisions existed.

Using the floodway/distance criteria, CPW generated a sample of land use decisions by narrowing the focus to decisions in areas of concern relative to identified risk factors, such as floodplain and riparian modification permits. The sample focused on parcels that had multiple high priority permits. In total, the sample of land use decisions contained information on 17 parcels and 65 permit applications. Map 2-1 shows the location of the parcels included in the analysis.

The case studies focus on the following issues:

- Were modifications or adjustments to code standards granted?
- Were permits approved with conditions? If so, were conditions ever satisfied?
- Did permit approvals result in subsequent enforcement activities?

To ensure a consistent format, CPW developed a template to summarize the relevant information associated with each case study (see Appendix A). Each case study includes the parcel number, lot size, and zone; an aerial photo of the parcel that includes floodplain data; a table listing all of the permit applications associated with the parcel; and when available, a site plan illustrating the proposed development. Additionally, CPW included a

brief narrative of the land use decisions and development on the parcel, as well as the water quality implications of the code application.

Map 2-1. Location of parcels included in the analysis



Chapter 3

Historical Development Activity in the McKenzie River Basin

A key objective of this project was to review and document historical development trends in the McKenzie River Basin. The analysis in this chapter is based on review of land use and assessment data provided by the Lane Council of Governments, and the permit database provided by Lane County Land Management. The analysis is intended to complement data and maps presented in the Risk Atlas. All of the data presented in this chapter is for the study area as described in Chapter 2.

Historical land use and development patterns

This section provides an overview of land use and development in the McKenzie River Basin Study area. It focuses on historical land use and development patterns.

Parcelization

Table 3-1 summarizes parcelization within the study area. The table includes the number of tax lots, the number of addresses, total acres, and average acres per tax lot. The results show the study area includes nearly 32,000 acres in about 4,550 tax lots.

Table 3-1. McKenzie Basin study area summary, 2009

Focus Area	Subfocus Area	Tax Lots	Addresses	Total Acres	Avg Acres/ Tax Lot
Lower McKenzie	Camp Creek	860	2,069	11,267	13.1
	Walterville	1,137	666	7,985	7.0
	Leaburg	500	973	2,145	4.3
	Total	2,497	430	21,396	24.4
Middle McKenzie	Vida	598	901	3,367	5.6
	Marten Creek	205	551	1,633	8.0
	Nimrod	211	164	560	2.7
	Total	1,014	186	5,560	16.3
Upper McKenzie	Blue River	312	944	1,265	4.1
	Rainbow	398	278	2,085	5.2
	Mckenzie Bridge	336	312	1,509	4.5
	Total	1,046	354	4,859	13.8
Grand Total		4,557	3,914	31,816	7.0

Source: LCOG tax lot and address data; analysis by CPW.

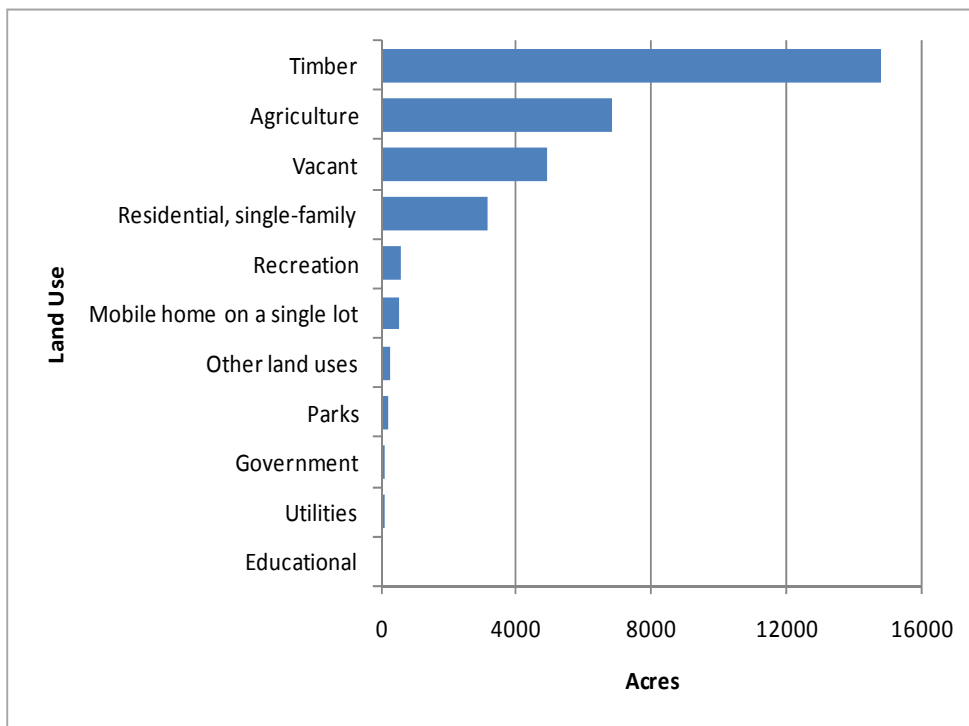
Observations

- Approximately 36% of tax lots in the study area are under one acre in size
- Approximately 23% of tax lots in the study area are over 5 acres.

Current land-use

CPW analyzed land use by general classifications in the study area. The land use database maintained by LCOG represents sub-taxlot level land uses. Figure 3-1 shows major land uses in the study area ranked by acres. The results show that timber and agriculture are the dominant land uses in the study area, and account for 69% of total acres in the study area.

Figure 3-1. Land use in acres, McKenzie Basin study area, 2009



Source: LCOG tax lot and address data; analysis by CPW.

Observations

- Forest uses represent the largest amount of acreage (14,790 acres) in the study area, which covers 46.9% of the study area.
- Agricultural uses represent the second largest amount of acreage (6,850 acres), which covers 21.7% of the study area.
- Single Family Dwellings and Mobile Homes represent the fourth largest and sixth largest amount of acreage in the study area for a total of (3,674 acres), which covers 11.7% of the study area.

- Agricultural land use is more prevalent in the Lower Section of the Basin (28.9%) in comparison to the Middle (12.6%) and Upper (0.9%) Sections.

Zoning

Table 3-2 shows zoning in the study area. Zoning is relevant because zoning regulates land use, as well as the height, bulk and density of structures. The data are sorted by acres in tax lots from most to least. More than 65% of the land in the study use is zoned for either exclusive farm or forest uses. Rural residential uses, however, account for the majority of tax lots (nearly 75% of tax lots are in some type of rural residential zone).

Table 3-2. Zoning McKenzie Basin study area, 2009

Zoning Code	Zoning Description	Taxlots		Acres in Taxlots		Average Acres per Taxlot
		Number	Percent	Number	Percent	
F2	Forest Land Impacted Forest Lands F-2, RCP	495	10.9%	12,921	40.6%	26.1
E30	EXCLUSIVE FARM USE 30 ACRE MIN	290	6.4%	6,494	20.4%	22.4
RR5	RURAL RESIDENTIAL 5 ACRE MIN	1,756	38.5%	4,808	15.1%	2.7
E60	EXCLUSIVE FARM USE 60 ACRE MIN	41	0.9%	1,796	5.6%	43.8
RR2	RURAL RESIDENTIAL 2 ACRE MIN	1,225	26.9%	1,686	5.3%	1.4
Other	HI, LD, LM, PL, RR5-NRE	58	1.3%	927	2.9%	1.4
E40	EXCLUSIVE FARM USE 40 ACRE MIN	25	0.5%	569	1.8%	22.7
RR10	RURAL RESIDENTIAL 10 ACRE MIN	101	2.2%	527	1.7%	5.2
ML	Marginal Land Marginal Lands ML-RCP	28	0.6%	426	1.3%	15.2
PR	Park and Recreation Park and Recreation PR-RCP	58	1.3%	406	1.3%	7.0
RPR	Rural Park and Recreation Rural Park and Recreation RPR, RCP	5	0.1%	337	1.1%	67.4
RC	Rural Commercial Rural Commercial RC, RCP	165	3.6%	219	0.7%	1.3
RR1	RURAL RESIDENTIAL 1 ACRE MIN	265	5.8%	188	0.6%	0.7
SG	Natural Resource Sand, Gravel and Rock Products SG-RCP	12	0.3%	184	0.6%	15.3
RPF	Rural Public Facility Rural Public Facility RPF, RCP	28	0.6%	129	0.4%	4.6
QM	Natural Resource Quarry & Mining Operations Combining /QM-RCP	1	0.0%	122	0.4%	121.8
RI	Rural Industrial Rural Industrial RI, RCP	4	0.1%	77	0.2%	19.2
Total		4,557	100.0%	31,816	100.0%	7.0

Source: LCOG tax lot and address data; analysis by CPW.

Observations

- F2, Impacted Forest Lands zoning represents the largest amount of acreage (12,921 acres) in the study area. (Note that lands in the F-1 non-impacted forest lands zone are excluded from the study area).
- E30, Exclusive Farm Use with a 30 acre minimum lot size zoning represents the second largest amount of acreage (6,494 acres) in the study area.

- RR5, Rural Residential with a 5 acre minimum lot size zoning represents the third largest amount of acreage (4,808 acres) in the study area and the largest percentage of lots (39%).

Historical residential development trends

Table 3-3 shows residential development by decade in the study area based on year built data from the Lane County Assessor. The results show that 2,600 dwellings are located on more than 14,000 acres in the study area. Residential development peaked in the 1970s, when 525 dwellings were constructed. The rate of development has been somewhat variable since the 1970s, with the lowest rate observed in the 1980s (related to the economic recession).

Table 3-3. Residential development by decade, McKenzie Basin study area

Decade	Taxlots				Acres			
	Taxlots	Cumulative Taxlots	Percent of Total	Percent Change	Acres	Cumulative Acres	Percent of Total	Percent Change
1870-1879	1	1	0.0%		2	2	0.01%	
1880-1889	3	4	0.1%	67%	360	362	2.51%	99%
1890-1899	10	14	0.4%	70%	154	515	1.07%	-134%
1900-1909	33	47	1.3%	70%	250	766	1.74%	39%
1910-1919	42	89	1.6%	21%	717	1,483	4.99%	65%
1920-1929	84	173	3.2%	50%	523	2,006	3.64%	-37%
1930-1939	177	350	6.8%	53%	1,170	3,175	8.15%	55%
1940-1949	332	682	12.8%	47%	1,559	4,734	10.86%	25%
1950-1959	228	910	8.8%	-46%	1,392	6,126	9.70%	-12%
1960-1969	432	1,342	16.6%	47%	1,569	7,695	10.92%	11%
1970-1979	525	1,867	20.2%	18%	1,876	9,571	13.07%	16%
1980-1989	199	2,066	7.7%	-164%	1,209	10,780	8.42%	-55%
1990-1999	309	2,375	11.9%	36%	2,291	13,071	15.96%	47%
2000-2009	225	2,600	8.7%	-37%	1,287	14,358	8.96%	-78%
Grand Total	2,600		100.0%		14,358		100%	

Source: Lane County Assessment data; analysis by CPW.

Table 3-4 shows the location of addresses by type in the study area. The results show that nearly two-thirds of the addresses in the study area are single-family residences, with another 13% being mobile or manufactured homes.

Table 3-4. Address locations by type, McKenzie Basin study area

Focus Area	Address Type				Total
	Single Family	Mobile	Commercial	N/A	
Lower Mckenzie	1,497	306	51	215	2,069
Middle McKenzie	691	114	33	63	901
Upper McKenzie	343	105	35	461	944
Total	2,531	525	119	739	3,914
Percent of Total	65%	13%	3%	19%	100%

Source: Lane County Land Management data; analysis by CPW.

Observations

- The largest increase in dwellings as measured by year built occurred from 1970 to 1979.
- The largest increase in residential acreage occurred from 1990-1999.
- Nearly two-thirds of the addresses in the study area are single-family residences, with another 13% being mobile or manufactured homes.

Development in relation to the river

The proximity of development to the river is relevant to this study because structures near the McKenzie River and its tributaries have potential impacts on water quality. To better understand the relationship of development to the river, CPW reviewed address points by distance to the water for the study area using data provided by LCOG and Lane County.

The data, however, have some limitations: (1) because river channels are dynamic, the location of the river edge in the GIS data may not correspond exactly to the current river edge; and (2) the address data are point data and may not represent the nearest point of the structure to the river. Despite these limitations, a review of aerial photos suggests that the address data are reasonably accurate and provide a useful representation of the proximity of development to the river.

Proximity of dwellings to the river

Of particular interest in this study was the proximity of dwellings to the river. Table 3-5 shows addresses that fall between access roads and the river. About 22% (875) of the 3,914 addresses in the study area fall in this area.

Table 3-5. Proximity of dwellings to access roads and the river, McKenzie Basin study area

Focus Area	Addresses Pts.	Between Road and River	
		Percent	
Camp Creek	666	42	6.3%
Walterville	973	104	10.7%
Leaburg	430	102	23.7%
Vida	551	172	31.2%
Marten Creek	164	80	48.8%
Nimrod	186	73	39.2%
Blue River	278	57	20.5%
Rainbow	312	132	42.3%
Mckenzie Bridge	354	113	31.9%
Total	3914	875	22.4%

Source: Lane County Land Management data; analysis by CPW.

Table 3-6 shows the distance of address points to water. The results show that 3% (125 addresses) were located within 50' of the water; 10% (401 addresses) within 100 feet of the water, and 44% (1734 addresses) within 500 feet of the water.

Table 3-6. Distance of address points to water, McKenzie Basin study area

Distance	Address Points	Percent of Total
0-50 feet	125	3%
0-100 feet	401	10%
0-200 feet	835	21%
0-300 feet	1,156	30%
0-400 feet	1,478	38%
0-500 feet	1,734	44%
Greater than 500 feet	2,180	56%
Grand Total	3,914	

Source: Lane County Land Management data; analysis by CPW.

Observations

- 22% of addresses (875 addresses) are between the primary access road and the McKenzie River.
- 3% of 3,914 address points in the study area are located within 50 feet of the edge of the McKenzie River or its large tributaries.
- 10% of 3,914 address points in the study area are located within 100 feet of the edge of the McKenzie River or its large tributaries.

- 7% of 917 address points in the Middle McKenzie focus area are within 50 feet of the edge of the McKenzie River or its large tributaries, the highest percentage of address points within the study area.

Proximity of dwellings to the floodplain

The proximity of address points to the floodplain is relevant because structures within the floodplain can increase vulnerabilities to water quality through increased impervious surfaces, erosion, and runoff. CPW identified and mapped address points within the floodway, the 100-year floodplain, and 500-year floodplain as defined by FEMA.²

Table 3-7 shows proximity of address points to three floodprone areas: the 100-year floodplain, the floodway, and areas inundated in the 1996 flood. The results show that 16% of addresses (620) in the study area are within the 100-year floodplain. Seventy addresses are in the floodway, and 18 addresses were within the mapped extent of the 1996 flood.

Table 3-7. Proximity of address points to floodprone areas, McKenzie Basin study area

Focus Area	Lower	Middle	Upper	Total	Percent
Floodplain (100 yr)	371	63	186	620	16%
Floodway	26	18	26	70	2%
1996 Flood	10	8	0	18	0%
Total Study Area	2,069	901	944	3,914	100%

Source: Lane County Land Management data; analysis by CPW.

Observations

- 2% of the 3,914 address points in the study area are located within the floodway.
- 16% of the 3,914 address points in the study area are located within the 100-year floodplain.

² Note that the presence of a dwelling in a flood zone is based on data in the geographic information system coverages. These coverages provide the best available approximation of the actual extent of flood zones and location of dwellings; however, some inaccuracies may exist.

Chapter 4

Analysis of Recent Development Activity

This chapter summarizes key findings from CPW's review of land use decisions that pose a potential risk to water quality in the McKenzie River Basin. The initial sample of cases included Single Family Residential Building Permits, Riparian Modifications, Septic Installation and Disposal Repair Permits, Floodplain Development Permits, and Compliance/Enforcement Orders, among others.

Approach and limitations

CPW conducted a variety of tabular analyses of the Lane County permit database for the McKenzie Basin study area. Note that the analysis only pertains to records in the database; we did not verify whether the work applied for in individual permits was actually conducted.

Appendix B provides a list of permit types. Note that the Lane County Land Management permit database includes all types of permits issued by the county. Permit types range from land use review (riparian setbacks, subdivisions, floodplain, etc.) to building permits (permits for dwellings, accessory structures, mechanical, electrical, etc.) to septic systems and enforcement actions.

It is difficult to make generalizations of the data due to the nature of the population. Each permit and land use decision is unique, as is the land that they are located on. Thus, we encourage readers to use caution while reviewing and interpreting the data.

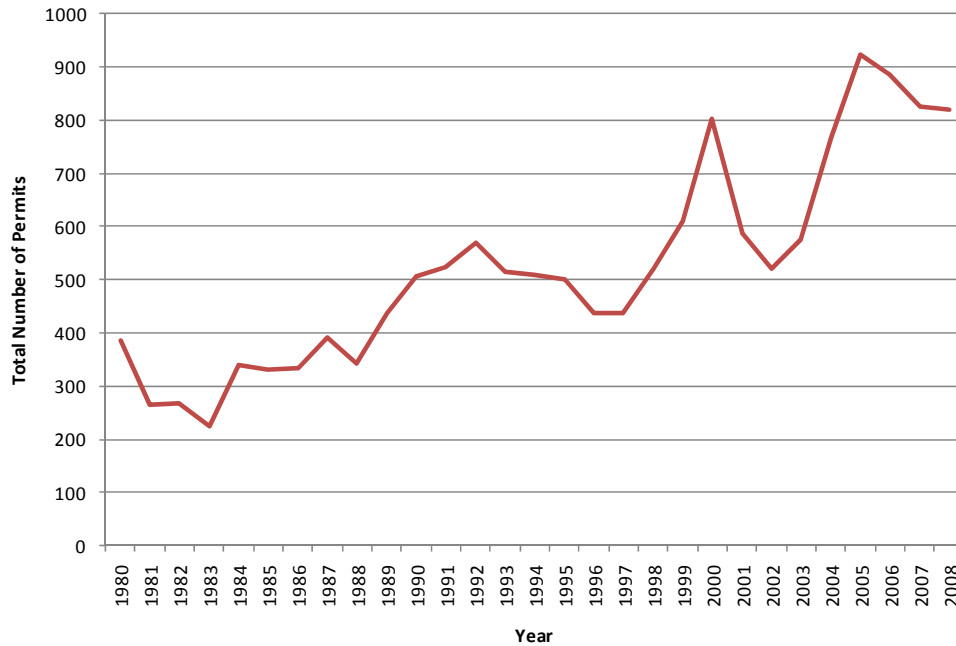
Development activity

A key goal of this study was to evaluate the rate and type of development and permit activity in the McKenzie Basin study area. The analysis in this section is based on a permit database provided by Lane County Land Management. The database initially included all permits in the County; CPW evaluated only those permits that matched tax lots in the McKenzie Basin study area.

Figure 4-1 shows the volume of permit activity (all permit types) in the study area between 1980 and 2008. The results show that permit activity

varies from year to year (ranging from just over 200 permits to over 990 permits) and tends to roughly follow economic cycles.

Figure 4-1. Total permits issued in the McKenzie Basin study area, 1980-2008



Source: Lane County Land Management permit data; analysis by CPW.

Table 4-1 shows permits by type issued in the study area between 1980 and 2008. The analysis shows that the majority (62%) of permits were building permits. The second largest category is planning department (Land Management) administrative approval.

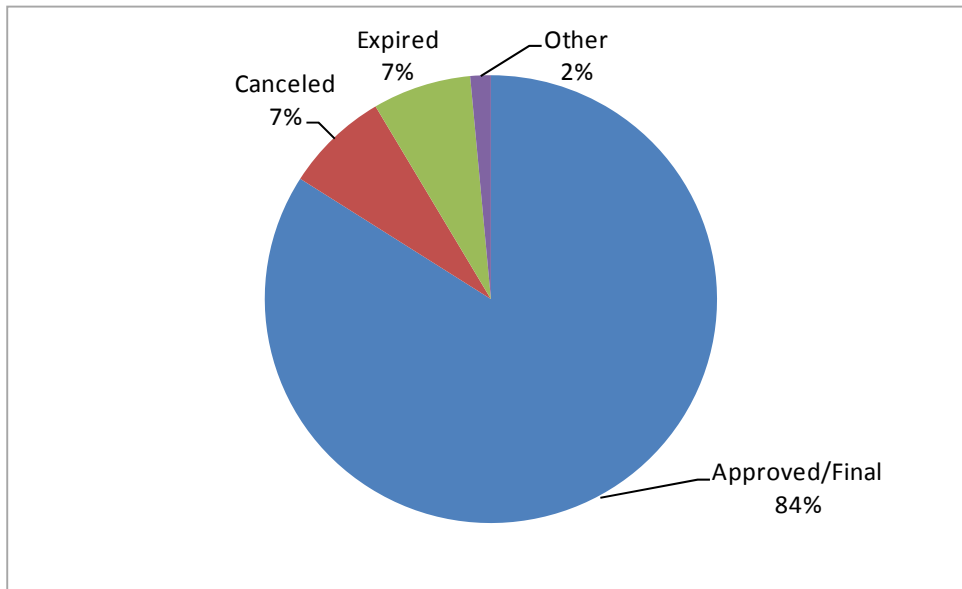
Table 4-1. Permits by type, McKenzie Basin study area, 1980-2008

Permit Type	Number of Permits	Percent of Permits
Building Permit	9,479	62%
Compliance	285	2%
Electrical	1,101	7%
Planning Administrative Approval	3,314	22%
Sanitary Inspection	561	4%
Sanitary Permit	478	3%
Preapplication Meeting	84	1%
Total	15,302	100%

Source: Lane County Land Management permit data; analysis by CPW.

Note that not all of the permits shown in Table 4-1 were approved. Figure 4-2 shows that 84% of permits (12,853 permits) were approved or finalized, 7% were canceled (1,140), 7% expired (1,084), and 2% fell in other categories.

Figure 4-2. Status of permits, McKenzie Basin study area, 1980-2008



Source: Lane County Land Management permit data; analysis by CPW.

Table 4-2 shows permit activity by tax lot (i.e., a count of the number of permits issued for each tax lot in the study area). In total, the permit database included 15,302 permits on 2,713 individual tax lots for an average of 5.6 permits per tax lot. The results show that a large majority of tax lots (83%) had more than one permit application since 1980. Nearly 40% of the tax lots had six or more permit applications.

Table 4-2. Permit activity by taxlot, McKenzie Basin study area, 1980-2008

Number of Permits	Number of Tax Lots	Percent of Tax Lots
1	468	17%
2	402	15%
3	317	12%
4	299	11%
5	221	8%
6-10	670	25%
11-15	217	8%
16-20	59	2%
21-25	30	1%
25-49	22	1%
50+	8	0%
Total	2713	100%

Source: Lane County Land Management permit data; analysis by CPW.

Land divisions

Land divisions occur when a parcel is divided into two or more new lots. Land divisions are addressed in Chapter 13 of the Lane Development Code.

The County processed 434 applications for legal lot verifications. Legal lot verifications are a pre-requisite to land division or a building permit for a new residence.

The permit database shows that four permits for partitions (division of a parcel into 2 or 3 lots) were approved and two subdivisions (division of a parcel into four or more lots) since 2000. The number of lots created by land divisions was not available in the database.

CPW identified 13 applications for Measure 37 claims in the permit database.

Residential building permits

Lane County issues permits for housing, including new residences and any remodeling or alterations. Table 4-3 shows permits issued for new residential dwellings in the McKenzie Basin study area between 1999 and 2008 by type of dwelling. Note that we did not confirm whether the dwellings were actually built or whether they replaced an existing dwelling.

The data show that Lane County issued permits for approximately 1,800 residential dwellings between 1999 and 2008. The majority (60%) of permits issued were for single-family dwellings. Notably, about one-third of the permits were issued for accessory dwellings or structures. The permit database shows that five permits were issued for dwellings in Exclusive Farm Use zones in the study area. All of these permits were issued between 1998 and 2007. In addition, five permits were issued for dwellings on land zoned impacted forest land (F-2). All of these permits were issued between 2000 and 2005.

Table 4-3. Permits issued for residential dwellings, McKenzie Basin study area, 1999-2008

Type	Year										Total
	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	
Accessory	27	65	66	61	57	39	39	58	51	59	522
EFU Dwelling	0	1	0	0	1	0	1	1	0	1	5
F-2 Dwelling	0	1	0	1	0	0	1	1	0	0	4
Manufactured	27	19	21	12	21	13	6	21	10	11	161
Manufactured in Park	5	3	1	4	1	3	4	1	4	4	30
Single-family	100	125	198	110	79	128	92	84	95	70	1081
Total	159	214	286	188	159	183	143	166	160	145	1803

Source: Lane County Land Management permit data; analysis by CPW.

In addition to permits for new residences, the county issued 115 permits for temporary mobile or manufactured homes and 408 renewal permits for temporary mobile homes.

Permit activity in riparian areas

Chapter 16.253 of the Lane Development Code addresses development in riparian areas. The purpose of the riparian ordinance is to

“implement the Goal 5 Flora and Fauna policies and the Goal 6 Water Resources policies of the Lane County Rural Comprehensive Plan and the Goal 5 riparian policies of the Eugene-Springfield Metropolitan Area General Plan.

In general, the ordinance requires property owners maintain “a minimum of seventy-five percent (75%) of the total area within the riparian setback area of any legal lot shall remain in an unaltered, indigenous state,” with some notable exceptions.³ Stated conversely, the ordinance allows removal of 25% of riparian vegetation.

³ LC 16.253(2)(b)(i) states “The maximum allowable removal for any legal lot having frontage of 200 feet or less in length along a Class I stream shall not exceed 50 linear feet

Currently, Lane County regulations state that the riparian setback will be 50 feet along streams, except in F1 – Non-Impacted Forest Lands, F2 – Impacted Forest Lands and EFU - Exclusive Farm Use zones where the setback will be 100 feet (LC 16.253). In addition, Lane Code limits removal of existing vegetation from within the riparian setback area of any legal lot to the shoreline linear frontage and square footage limitations outlined in Table 4-4.

Table 4-4. Standards for removal of vegetation within the riparian setback area, LC 16.253(2)

River Frontage	Allowable Shoreline Removal	Allowable removal within riparian setback area	
		Nonresource zone	Resource Zone
<200 ft	50 linear ft	2,500 sq ft	5,000 sq ft
200-400 ft	no more than 25% of linear footage	25% of the total square footage within setback area	
> 400 ft	100 linear ft	5,000 sq ft	10,000 sq ft

Source: Lane County Code Section 16.253.

Note: These regulations apply to all class I streams

Vegetation removal within the riparian setback area is permitted under certain conditions including the removal of dead or diseased trees that are hazardous, in the process of structural shoreline stabilization, and for riparian enhancement projects.

Modification⁴ to the applicable riparian setback standard for a structure may be allowed provided the Oregon Department of Fish and Wildlife is consulted by the Planning Director at least 10 working days prior to the initial permit decision. The Planning Director may grant a modification to allow a structure in the riparian setback area (1) if the vegetation alteration or removal caused by the structure does not exceed the regulations in Table 4-4; (2) if the riparian vegetation does not actually extend all the way to the riparian setback at the location of the structure; or (3) if the landowner can demonstrate that an unduly restrictive burden would be placed on the property owner if the structure was not allowed to be located within the riparian setback area (LC 16.253(3)).

along the shoreline and an area not greater than 2,500 square feet within the riparian setback area of a Nonresource Zone, or 5,000 square feet within the riparian setback area of a Resource Zone.” CPW’s interpretation is that the code allows removal of more than 25% of riparian vegetation for lots with frontages 200 feet or less.

⁴ A modification differs from a variance because a modification limits the reduction of the standards in a particular section of code to prescribed amounts. A variance allows reduction beyond the minimum allowed by the code. For example, a riparian modification allows the riparian setback to be modified to a minimum of 25 feet. Reducing the riparian setback to a greater degree requires a variance.

Table 4-5 summarizes riparian permit activity in the McKenzie Basin study area for the period between 1980 and 2008. The data show 134 applications for riparian declarations (i.e., applications to determine the extent of the riparian area on a property), and 41 applications for riparian setback modifications. Of those 41 riparian setback modifications, 36 were approved, four were canceled, and one was denied. Notably, two of the permits were approved for structures in the floodway.

Table 4-5. Riparian permit activity, McKenzie Basin study area, 1980-2008

Type of Permit	Number
Riparian Declaration	134
Riparian Development Plan	3
Riparian Enhancement Plan	1
Riparian Modification	4
Riparian Preliminary Investigation	1
Riparian Restoration	1
Riparian Setback Modification	41
Total	185

Source: Lane County Land Management permit data; analysis by CPW.

Permit activity in floodplains and floodways

Chapter 16.244 (the Floodplain Combining Zone) of the Lane Development Code addresses development in floodprone areas. The purpose of the floodplain combining zone is, “to promote the public health, safety and general welfare, and to minimize public and private losses due to flood conditions in specific areas.” The zone applies to properties within flood hazard areas identified by the Federal Insurance Administration in the Lane County Flood Hazard Area Study.

Development in areas of flood hazard require that a permit be approved by the Planning Director. Table 4-6 shows permit activity related to the floodplain ordinance for all types of floodplain combining zone permits. A typical process for properties with potential flood hazards is to first verify that the structure location is in the flood zone, and then to issue the appropriate permit(s). This process is reflected in the data shown in Table 4-6; more than half of the 1,083 permits (564) were for floodplain verifications.

The second largest category of permits was floodplain elevation reviews for building permits. Subsection 8(b) describes the requirements:

“applications for building and manufactured home placement permits shall be reviewed to assure that proposed construction will be reasonably safe from flooding. The test of reasonableness shall include the use of historical data, high water marks, photographs of past flooding, etc., where available.”

The database included 107 permits for residences, 34 permits for accessory buildings, 67 permits for fill or fill/removal in the floodplain, and eight permits for development in the floodway.

Table 4-6. Permit activity related to the floodplain ordinance, McKenzie Basin study area, 1980-2008

Permit Type	Lower McKenzie	Middle McKenzie	Upper McKenzie	Grand Total
Floodway Permit	5	2	1	8
Flood Verification	298	164	102	564
Floodplain Review for Building Permit	141	67	75	283
Floodplain Field Verification		2		2
Floodplain Dwelling	35	11	19	65
Floodplain Manufactured Home	33		9	42
Floodplain Accessory Building	34			34
Floodplain Bridge	3		1	4
Floodplain Combination	6			6
Floodplain Fill	29	5	5	39
Floodplain Fill/Removal <3000 CU YDS	5	1	2	8
Floodplain Fill/Removal <500 CU YDS	17	2	1	20
Floodplain Floodproofing	7			7
Grand Total	613	254	215	1082

Source: Lane County Land Management permit data; analysis by CPW.

Table 4-7 shows the number of permits by tax lot in relation to floodways and floodplains. For example, the database included a total of 468 tax lots with one permit. Of those, 119 were issued for tax lots that had some portion in the floodway, 177 for tax lots with some portion in the 100 year flood plain, 17 for addresses (used as a proxy for dwellings) located in the floodway, and 103 for addresses located in the 100 year floodplain.

Table 4-7. Permit activity in relation to floodways and floodplains, McKenzie Basin study area, 1980-2008

Number of Permits	All Permits		Lots with portion in Floodway		Lots with portion in 100 yr Floodplain		DU in Floodway		DU in 100yr Floodplain	
	Number of Tax Lots	Percent of Tax Lots	Number of Tax Lots	Percent of Tax Lots	Number of Tax Lots	Percent of Tax Lots	Number of Tax Lots	Percent of Tax Lots	Number of Tax Lots	Percent of Tax Lots
1	468	17%	119	15%	177	20%	17	13%	103	21%
2	402	15%	105	13%	184	20%	23	17%	100	21%
3	317	12%	82	10%	135	15%	21	16%	67	14%
4	299	11%	91	12%	119	13%	20	15%	60	12%
5	221	8%	55	7%	81	9%	11	8%	39	8%
6-10	670	25%	207	26%	74	8%	11	8%	40	8%
11-15	217	8%	90	11%	91	10%	20	15%	47	10%
16-20	59	2%	22	3%	23	3%	5	4%	15	3%
21-25	30	1%	11	1%	9	1%	3	2%	5	1%
25-49	22	1%	8	1%	7	1%	2	2%	3	1%
50+	8	0%	0	0%	3	0%		0%	3	1%
Total	2713	100%	790	29%	903	33%	133	5%	482	18%

Source: Lane County Land Management permit data; analysis by CPW.

Note: DU = dwelling unit

Permit activity for septic systems

Oregon Department of Environmental Quality (DEQ) regulations govern septic systems in Lane County. These regulations include the Three Basin Rule (OAR 340-041-0350) and On-Site Sewage Disposal rules (OAR 340-071 and OAR 340-073).

The Three Basin Rule was established to preserve or improve existing high quality water in the Clackamas, McKenzie, and Santiam rivers for municipal drinking water use. The rule prohibits new or increased waste discharges in these watersheds, excepting domestic sewage facilities that discharge less than 5,000 gallons per day.

The On-Site Sewage Disposal rules detail standards and materials for septic construction and repair, and include a list of conditions necessary for permitting septic systems on certain slopes and soil types. The rules increase septic system depth requirements on slopes above 12% and include special steep slope regulations for slopes above 30%. Septic system siting is regulated based on soil type, with less porous soils requiring deeper and larger drainfields than more porous soils. Other rules dictate minimum separation distances between septic systems and wells, public surface waters, property lines, and other elements (see Best Management Practices report). The rules also regulate drainage field placements and require a "Time of Transfer" evaluation of waste disposal systems for properties with alternative treatment technologies. In addition, the rules establish more stringent rules for particular locations. Within Lane County, septic systems in the DEQ designated River Road/Santa Clara Protection Area and the North Florence Dunal Aquifer

Protection Area must meet restrictions on the daily sewage loading rates of nitrogen-nitrates.

Lane County Land Management Division (LMD) acts as DEQ's agent for the regulation of on-site disposal systems that do not require a WPCF permit. DEQ retains authority over larger sewage disposal systems that require a Water Pollution Control Facility (WPCF) permit.

Lane County Code regulates periodic pumping of septic tanks, but does not address other issues with septic systems. Model codes and other jurisdictions offer more stringent regulation of septic systems (see the companion report on Model Ordinances and Best Management Practices for more details).

Table 4-8 summarizes key statistics for septic systems in the study area. CPW estimates that about 3,200 septic systems exist in the study area (based on address points). The average drainfield size is about 2,500 sq. ft., which results in a total drainfield coverage of approximately 183 acres. EWEB has inspected about 435 of those systems through its inspection program.⁵

CPW identified 62 systems within the 100 year floodplain and 14 systems within the floodway. These results are based on address points and proximity to the river and represent estimates.

Table 4-8. Summary of septic systems, McKenzie Basin study area

Measure	Value
Approx. Number of Septic Systems*	3200
Average Drainfield Size	2500 sq ft
Total Drainfield Coverage	183 acres
Systems Inventoried by EWEB	435
Systems within 100yr Floodplain	62
Systems within Floodway	14

Source: Lane County Land Management permit data; analysis by CPW.

*Based on address points

⁵ EWEB received grant funds from the Oregon Department of Environmental Quality (DEQ) and U.S. Environmental Protection Agency (EPA) Safe Drinking Water Program to implement the McKenzie River Septic System Assistance Project. Project goals included: (1) Public education and outreach; (2) Water quality monitoring; (3) Free septic system inspections. EWEB provided participating homeowners with educational materials, as well as a copy of the septic system inspection report with an aerial photo showing the location of their septic system and drainfield. See <http://www.eweb.org/septic> for more information.

Table 4-9 summarizes septic system permits issued in the McKenzie Basin study area between 1980 and 2008. The data show that the majority of permits issued (388 of 595) were for repair of septic systems. An additional 164 permits were issued for septic verifications (i.e., verifications for septic systems included as part of residential or commercial building permits).

Table 4-9. Summary of septic system permits, McKenzie Basin study area, 1980-2008

Permit Type	Lower McKenzie	Middle McKenzie	Upper McKenzie	Grand Total
Septic System Renewal	5	3	8	16
Septic Verification	111	33	20	164
Sewage Disposal Repair	172	123	93	388
Grand Total	297	163	135	595

Source: Lane County Land Management permit data; analysis by CPW.

Code enforcement

Enforcement provisions are identified in several different areas of the Lane County code. Based on discussions with County staff, code enforcement is generally triggered as the result of a complaint.

CPW identified 267 code enforcement records in the permit database. Because the documentation provided with the database was minimal, we are unable to state what actions resulted from these records, if any.

Table 4-10 summarizes code enforcement records by type. The results show that 45% of the records were related to expired permits, 22% were related to buildings, and 11% were combinations. About 9% were for land use issues and 9% were for nuisance complaints.

Table 4-10. Code enforcement records by type, McKenzie Basin study area, 1980-2008

Type	Number	Percent
Building	58	22%
Combination	29	11%
Expired Permit	119	45%
Land Use	24	9%
Meth Lab	3	1%
Nuisance	23	9%
Recreational Vehicle	11	4%
Total	267	100%

Source: Lane County Land Management permit data; analysis by CPW.

Chapter 5

Key Findings and Conclusions

This chapter summarizes key findings and conclusions from CPW's research. It draws from the development analysis in Chapter 3, the analysis of the Lane County permit database in Chapter 4, and the case studies in Appendix A.

Case study analysis

CPW conducted detailed review of land use activity on 17 tax lots in the study area. The case studies were intended to provide a better idea of the types of land use activities occurring on high-risk tax lots, how the Lane Code was interpreted, and the implications of the development. The 17 case studies are included in Appendix A.

In general, CPW found the following overall issues in its review of Lane County land use decisions:

- The type and amount of documentation varied for individual types of permits and for different types of permits. In some instances, very little documentation was available. This does not necessarily imply there was no documentation—in some instances, such as building permits, we did not expect to find a lot of documentation. While it is possible that documentation of some decisions does not exist, it is also possible that CPW was unable to locate the documentation in the County files.
- When a staff report was present, Lane County Planning staff provided criteria upon which the decision was made, as well as conditions that would enable an application's approval in the report. In some instances, it appeared that conditions of approval were used to defer compliance with the Lane County Code criteria and/or standards to a later date. CPW did not conduct any follow up to determine whether deferred conditions were complied with.
- In several case studies, the staff reports stated that certain regulations, like riparian setbacks, would place an undue hardship on the on property owner and therefore variance or modifications were granted.
- Development in high-risk areas (floodways and floodplains) frequently results in a large volume of permit applications. This is in

part because the County imposes additional review criteria in these areas (for example, development in the floodplain may require a floodplain verification, a building permit and a floodplain permit, as well as other permits).

- Once a development is approved, it usually results in additional development activity. The majority of tax lots in the permit database had more than one permit issued since 1980.

The case studies provide useful insight into the implications of development in high-risk areas. We caution readers about drawing generalizations from the case studies (beyond the observations provided above). This is, in part, due to the unique nature of each development and each tax lot.

Riparian Modifications

Chapter 16.253 of the Lane Development Code addresses removal of riparian vegetation. Riparian vegetation is important to water quality protection by providing bank stabilization and shading. Developed root structures help prevent and minimize erosion by holding stream banks together. Bare soil is vulnerable to erosion, which releases sediment into the river and reduces water quality. In addition, mature riparian vegetation provides shade, which maintains cooler river temperatures, limits algae development, and creates better fish habitat.

CPW identified 41 applications for riparian setback modifications. Of these 36 were approved, four were canceled, and one was denied. Moreover, four riparian modifications were approved on tax lots where the address point was in the floodway.

Long-term impacts and demand on county resources

- Development in the riparian setback area may create long term threats to water quality. Moreover, riparian modifications may create a burden for county planning staff involved in future improvement or modification applications. Cases reviewed demonstrate that an approved development often leads to multiple permit applications and land use impacts, such as building improvements and repairs, revetments, damage to vegetation from construction, and riparian modifications.
- Once riparian vegetation is removed, it appears that it is rarely restored. The ordinance makes no provisions for vegetation that was removed prior to the ordinance's adoption in 1993; all pre-existing development is grandfathered in under the ordinance.

- Replacement buildings are generally placed within or in close proximity to the existing building footprint. However, the County does not impose siting or other requirements on development within small lots that could minimize riparian modifications.
- The County has few resources to monitor riparian areas (it does not have a detailed inventory) or to enforce violations. Current County policy is to pursue enforcement only when complaints are submitted.

Vegetation removal standards

- The riparian ordinance defines the amount of allowable vegetation removal based on the length of river frontage, stream classification, and zoning. The general standard is that property owners are allowed to remove up to 25% of the riparian vegetation. In practice, however, small lots with less than 200 feet of frontage on a Class I Stream can remove a greater percentage of vegetation than lots with larger frontage. For example lots with less than a 200 feet of frontage are allowed to clear up to 50 lineal feet. Our interpretation of this provision is that a property owner with a 50 lineal foot river frontage could remove all 50 feet or 100% of the frontage. Lots with large frontages can remove more overall square footage of riparian vegetation.
- Among the parcels investigated in our case studies, small lots, or lots less than an acre, adjacent to the river frequently occur in areas designated RR-2 or RR-5 by the Rural Comprehensive Plan zoning. These non-conforming lot sizes may create a greater risk of cumulative riparian vegetation removal.
- In one case, the approval of a special use permit allowed development within the riparian setback. The landowners violated the initial conditions of approval and altered the riparian area beyond what the code allows. Because the County does not have an inventory in place, and has limited resources for enforcement, it is possible that this is not an isolated occurrence.

Legal lot verification

- In some instances, small lots subject to riparian and road setbacks that would otherwise render the lot unbuildable (based on setback standards) did not appear to include a legal lot verification prior to approval of the permit to build within the riparian setback. In one example, a letter from a neighbor described historical debate over the actual legal lot line and lot size of the applicant's parcel. Instead of requiring a legal lot verification prior to approval, staff

deferred compliance by adding requirement as a condition of approval.

Road and riparian setbacks

- CPW identified 876 tax lots between roads and the McKenzie River. In cases where a structure must encroach on either a road setback or riparian setback, the road setback appeared to take precedence more frequently. In such cases, the road setback was typically upheld and the riparian setback was adjusted to accommodate the development to avoid placing an undue hardship on the applicant. Upholding road setbacks from Highway 126 supports clear safety concerns; however, many of the cases were located on local streets.
- In one case, both a road variance and a riparian setback modification were necessary to enable the construction of a two-story single-family dwelling. This particular parcel is subject to a 70' road setback and a 50' riparian setback. It also falls within a flood hazard area. The variance was approved with conditions, which were to be met within two years of the permit approval and included a final legal lot verification.

Agency Review

- The riparian ordinance requires notification to the Oregon Department of Fish and Wildlife (ODFW) for riparian modification permits. Of the permits reviewed, ODFW rarely provided comment on Riparian Modifications. When ODFW did comment, the final decisions did not specifically address their concerns. This is in part a function of the standards for land use review in Oregon; comments must be based on applicable criteria (in this instance the criteria for riparian modifications, setbacks, or vegetation removal). Anecdotal information suggests ODFW comments were often based on ODFW standards and not the Lane County approval criteria (the County is not obligated to act on comments that do not address applicable criteria). This suggests both that Lane County and ODFW standards are not aligned and may reflect a lack of understanding about the local land use process among state/federal agency staff.

Floodplain Development

Chapter 16.244 of the Lane County Development Code describes the floodplain combining ordinance. Development in floodplains poses risks to water quality because development including dwellings, septic tanks, and drainage fields, if located within the floodplain, may impact water quality by leaking untreated sewage, household chemicals, or hazardous materials

into the waterway. During a flood event, entire structures and septic systems may be washed into the waterway, negatively impacting water quality and leading to further property damage. Additionally, revetments and other bank stabilizing structures can cause increased velocity, turbidity, and water levels, especially during a flood event, which increases risk to human life, property, and water quality.

Long-term impacts and demand on county resources

- Based on analysis of the Lane County permit database, taxlots with structures within the floodplain have a significantly higher number of permits associated with them than those outside the floodplain. Structures outside the floodplain average about 3 permits, while those in the floodplain or floodway averaged more than five. Once a structure in the floodplain gains approval it can lead to multiple permit applications for development, such as additions, improvements, revetments, and erosion control measures. In addition, accessory structures are not as highly regulated as dwellings.

Disconnect between Federal, State and Local Regulations

- CPW identified several instances where Lane County approved a dwelling in the floodplain or floodway that subsequently resulted in property owners applying for emergency permits for revetments from the Division of State Lands to protect their structure due to bank erosion. In one instance, Lane County approved a dwelling outside the floodplain in a known meander zone. The river bank eroded and destroyed the dwelling within two years of the approval.
- One case demonstrated the ability of the code to restrict development in the floodplain. In this case, an application to build a dwelling on a 13-acre property in the floodplain was denied. The staff report recommended denial due to the potential for increased base flood elevation from the proposed development.
- Another case illustrated the inability of the code to restrict development in the floodplain. In this instance, the original owner of an 18.75-acre property proposed a dwelling away from the river after meeting with ODFW. However, a new owner built close to the river, then received approval to fill 900 cubic yards along 500 feet of shoreline to stabilize the bank. This case has implications for floodplain development and riparian modification code applications.

- The Lane County Floodplain Combining Zone does not address water quality or public health; rather its intent is to protect property from flood damage and limit the impact of development on flood levels.

Regulation of septic systems in floodplains

- Floodplain regulations restrict buildings to at least 1 foot above the base flood elevation, but septic systems are not covered by the code. Flooding of septic systems can result in damage to the systems, or contamination of surface or ground water by washing untreated effluent out of the tanks.

Septic Systems

Septic systems are a common feature of development in rural areas without municipal sewer systems. Along the McKenzie River, upriver from the Hayden Bridge intake facility, there are approximately 4,000 households and eight larger community sewage disposal systems that rely on septic systems for wastewater treatment. According to the Environmental Protection Agency (EPA), up to one quarter of septic systems fail within their lifetime. A failed septic system releases its contents into the surrounding soils and material will eventually leach into nearby water bodies.

The Oregon Department of Environmental Quality (DEQ) establishes the standards for siting septic systems. Based on address counts, CPW estimates that approximately 3,200 septic systems exist in the McKenzie Basin study area.

Minimal documentation of septic system applications

- Based on CPW's 17 case studies, documentation of septic systems and drainfield applications in permit files is generally incomplete, as little mention of soil types and slopes is included with applications for septic installations or repairs.
- Floodplain regulations only restrict development that affects drainage above ground by mandating that the ground floor must be at least 1 foot above the base flood elevation. Since septic systems occur below ground, they are not regulated by the floodplain requirement, which creates substantial risk of contaminants entering the river.

Consideration of adjacent land uses

- Lane County Development Code only addresses septic systems on the tax lot level, which omits proximity of a landowner's septic

system from a neighbor's well or vice versa. In addition, cumulative impacts of high septic system densities are not addressed. DEQ has explicit standards for the distance between septic systems and residential wells. Documentation CPW reviewed does not make clear that these standards are considered by Lane County staff during septic system review and approval.

- In one case, a landowner properly sited a well away from their own septic system, but to do so the well was located near the property line and next to the neighbor's septic system—and much closer than the 100-foot distance required by DEQ.
- Septic systems in floodplains and other high risk areas needing repair are frequently allowed to remain in the same spot. However, one case demonstrated the willingness of a landowner to re-locate a septic system that was within the riparian setback to an area outside of the setback at the time of repair or replacement.
- Septic systems are not currently included in consideration of existing building footprints, which has in some cases resulted in further encroachment into floodplain or riparian setbacks.

Sensitive Soils and Slopes

Steep slopes and certain soil types exacerbate the environmental impacts from development on water quality. As slope increases, erosion caused by construction and movement of earth increases, causing sedimentation of adjacent waterways. Soils affect the ease by which contamination passes from its source to a water resource. Soils with high gravel sand content allow contaminants to pass quickly to sensitive areas, including waterways, water bodies, and wellheads. Clay dominated soils also allow for quick transport of contaminants, but through overland flow instead of subsurface flow.

Limited regulation in relation to soils and slopes

- Soils and slopes are not generally addressed in permit decisions or Lane County Development Code.
- In one case, a septic system was indicated on the site plan for a new dwelling, but there was no indication that the DEQ septic regulations regarding soil type and slope were used in siting the septic system. The composition of soils on the property would have required more space for the prescribed length of the absorption trench, but the site plan shows the requirements were not followed.

Impervious Surfaces

Impervious surfaces, such as roads and dwellings, impact water quality by prohibiting water to seep through to the soil below. Instead, stormwater runoff increases with greater levels of impervious surfaces, which contributes to higher levels of erosion and nonpoint source pollution in nearby waterways.

Limited regulation in relation to Impervious Surfaces

- Impervious surfaces are generally not addressed in land use or building siting decisions.
- While the riparian setback prohibits impervious surfaces within the setback, variances and special use permits enable such development to persist in sensitive areas.
- In one case, an approved addition to the existing dwelling resulted in a significant increase of impervious surface cover in the riparian setback. The shallow lot size created a potential hardship situation; enabling a 20 foot encroachment into the riparian setback and the floodway for a dwelling and subsequent additions and improvements. The total built area within the riparian setback is 2,328 square feet, which translates into a large amount of impervious surface directly adjacent to the river.

Appendix A

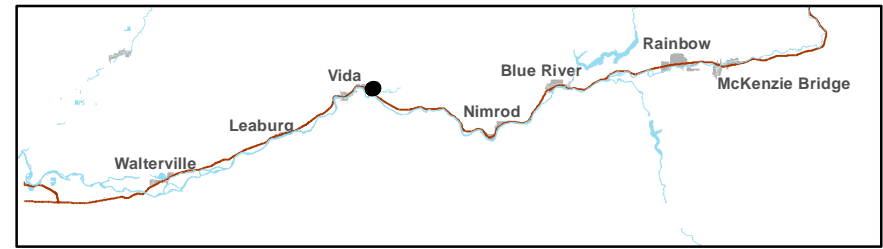
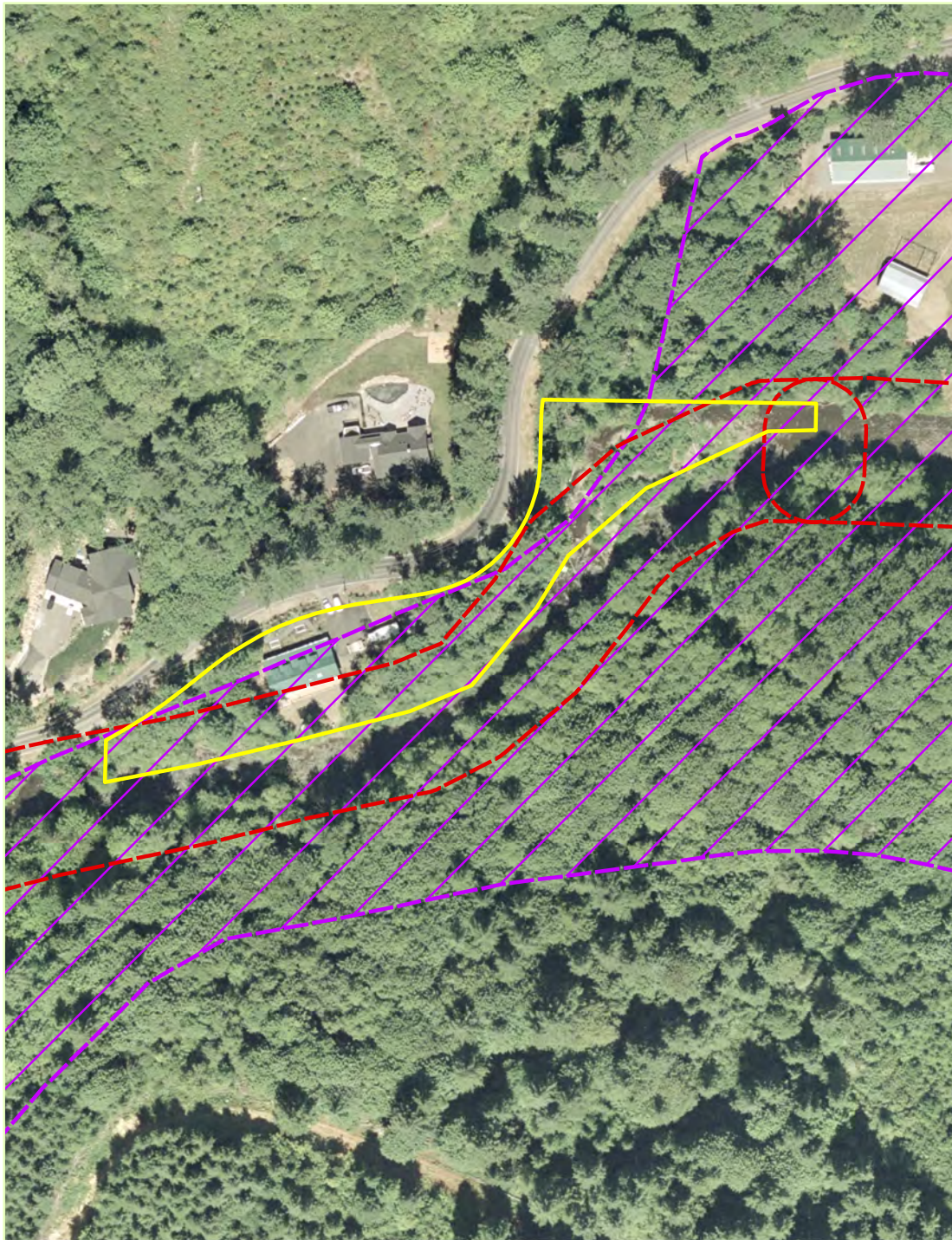
Case Studies

CPW conducted a series of 17 case studies detailing how specific sections of the Lane Development Code were applied to individual properties in the McKenzie River Basin study area⁶. The analysis included a variety of permit types and includes review of decisions in the following Lane Development Code sections:

- Enforcement (Chapters 9, 11, 15 & 16)
- Variance/Modification procedures (Chapters 11 & 16)
- Development standards (Chapter 16)
- Riparian regulations (Chapter 16)
- Site Review/Cluster Subdivision standards (Chapter 16)

CPW used a screening approach to identify the case studies. The 17 case studies are based on individual tax lots each of which may have multiple associated permit applications. CPW prioritized permit types based on development activity that poses the greatest potential risk to water quality. High priority tax lots evaluated in the initial screening were located within the floodway or 100 feet of the river's edge. To ensure adequate geographic representation, CPW identified land use decisions and permit activity from each sub-focus area within the basin to determine whether variation in the type and number of permit decisions existed.

⁶ The study area for this project consisted of the following lands in the McKenzie River Watershed: lands upriver from the Hayden Bridge intake that are outside of the Eugene-Springfield Metropolitan Urban Growth Boundary (UGB) and are not zoned F-1 (Non-Impacted Forest Lands Zone).



Land Use Decision Analysis

Maplot: 1625280003201
 Focus Area: Middle McKenzie
 Subfocus Area: Vida

Zoning: RR2
 Acreage: 1.48

-  Study Site
-  Fifty Foot Riparian Setback
-  Floodway
-  100 Year Flood Plain



Entered Date	Permit Number	Permit Type	Description	Status
2/23/2006	BP060256	Bldg Permit--Residential	SINGLE FAM	FINAL
2/23/2006	EL060245	Electrical Permit	Temporary Services	FINAL
2/23/2006	SP067054	Sanitation--Permit	INSTALLATION	FINAL
8/25/2006	EL061341	Electrical Permit	Residential Service	FINAL
9/19/2006	BP061500	Mechanical/Plumbing Perm	Residential Mech/Plumb	FINAL

0 225 450 675 900 Feet

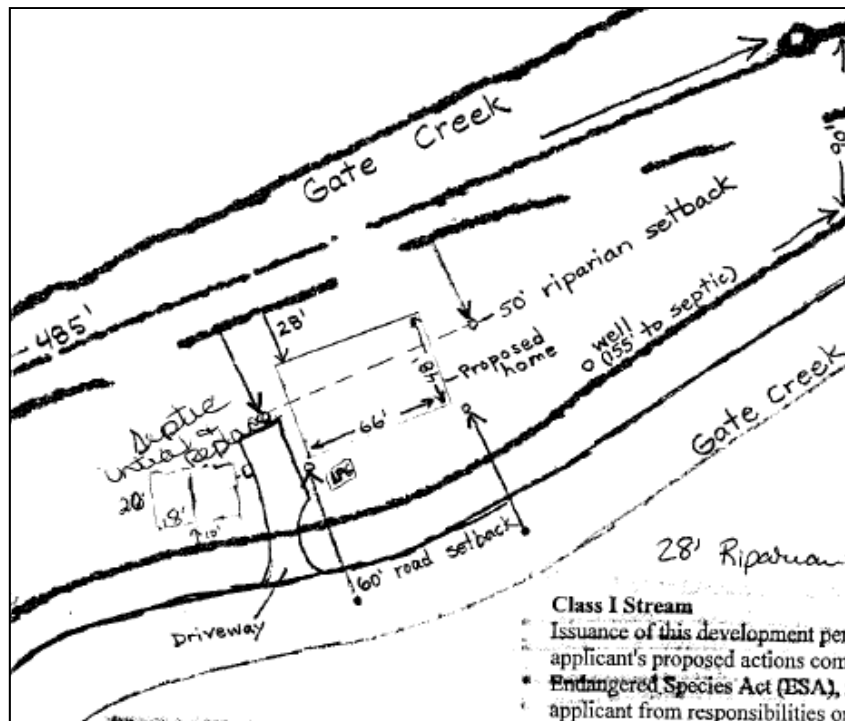
Data Sources: 2005 air photos, tax lots, approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

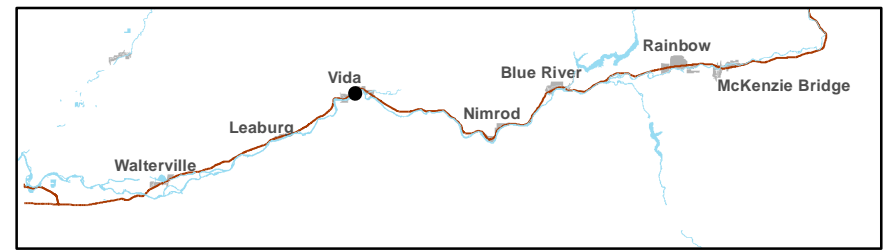
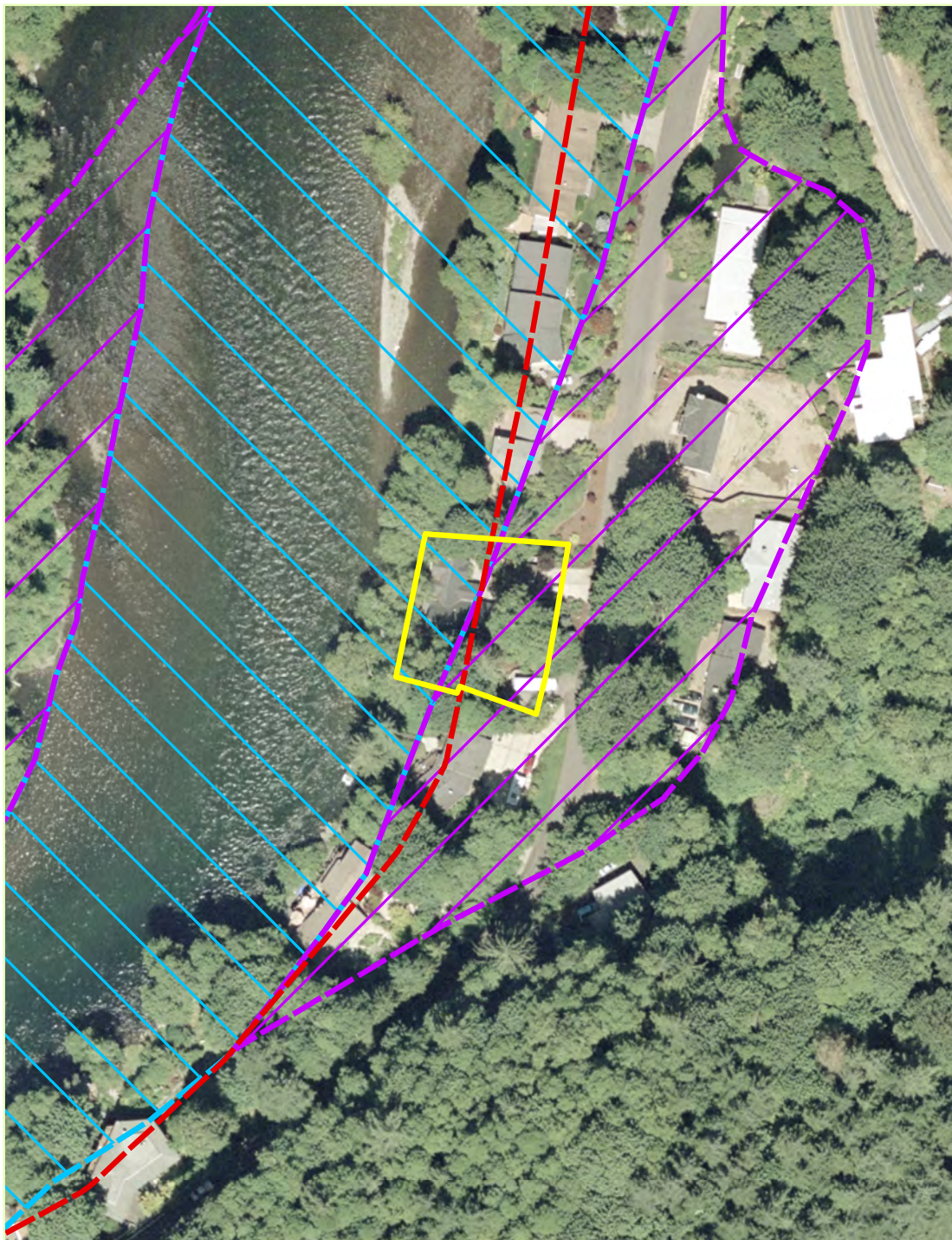
Narrative

In 2006, the property owner requested permission to build a single family dwelling on a parcel zoned RR-2 with areas within the 100-year floodplain. The proposed dwelling encroached 22 feet into the riparian setback area. The permit was approved with the condition that the development maintain consistency with the site plan documentation, applicant obtains a facility permit, and applicant obtains approval from DSL for ground alterations below the high water mark or within associated wetlands. No documentation of DSL review or approval was found in the file. As the site plan to the right indicates, the property is subject to the 60' road setback and the 50' riparian setback. A septic installation permit was also completed in 2006, which approved a bottomless sand filter septic system outside of the 50' riparian setback.

Implications

The file CPW reviewed was incomplete and did not include a full staff report to explain the criteria and conditions for approval. Additionally, CPW could not locate documentation of wetlands delineation or DSL approval for ground alteration below the high water mark. The site plan shows the potential for the building to have been located closer to the road and further from the river, or outside of the riparian setback entirely, which demonstrates the priority given to the right-of-way versus the riparian setback.





Land Use Decision Analysis

Maplot: 1625294100800
 Focus Area: Middle McKenzie
 Subfocus Area: Vida

Zoning: RR1
 Acreage: 0.30

-  Study Site
-  Fifty Foot Riparian Setback
-  Floodway
-  100 Year Flood Plain



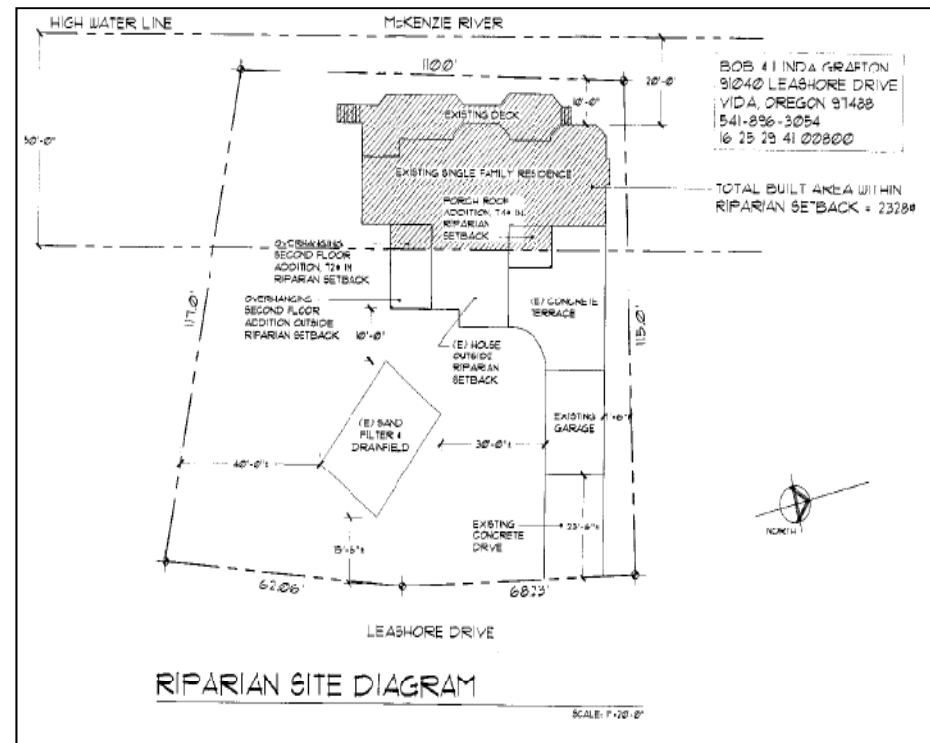
Entered Date	Permit Number	Permit Type	Description	Status
1/19/1982	SI820005	EVAPPL History	SITE INSPECTION	APPROVED
4/18/1988	BP881003	EVAPPL History	RES SINGLE FAM DWEL	FINAL
4/18/1988	PA881001	EVAPPL History	FLOOD VERIFICATION	COMP
4/18/1988	PA881002	EVAPPL History	(blank)	COMP
2/17/1993	BP930466	EVAPPL History	(blank)	CANC
5/25/2005	BP050950	Bldg Permit--Residential	ALTERATION/REMODEL	FINAL
6/16/2005	PA055819	Administrative Approval	FP REVIEW FOR BP	COMPLETE
6/16/2005	ZZ050034	Preapplication Review	(blank)	COMPLETE
12/13/2005	BP052261	Bldg Permit--Residential	ACCESSORY	FINAL
12/13/2005	CA050467	Compliance- Enforcement	EXPIRED PERMIT	COMPLETE
12/13/2005	PA056761	Administrative Approval	RIPARIAN DECLARATION	COMPLETE
1/17/2006	PA065076	Director Approval	RIPARIAN SETBACK MODIFY	APPROVED
3/1/2006	BP060293	Bldg Permit--Residential	ADDITION	FINAL
11/8/2006	EL061805	Electrical Permit	Service and Feeders	FINAL
12/5/2007	EL071870	Electrical Permit	Service and Feeders	FINAL

0 175 350 525 700 Feet

Data Sources: 2005 air photos, tax lots, approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

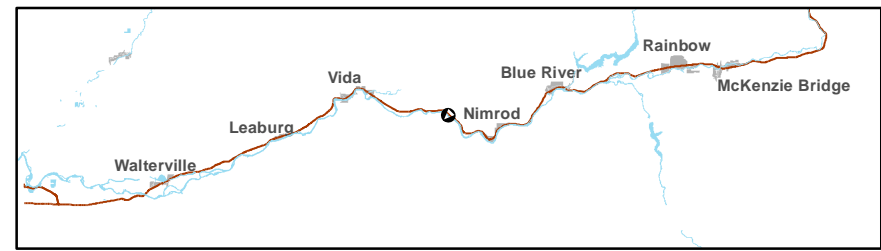
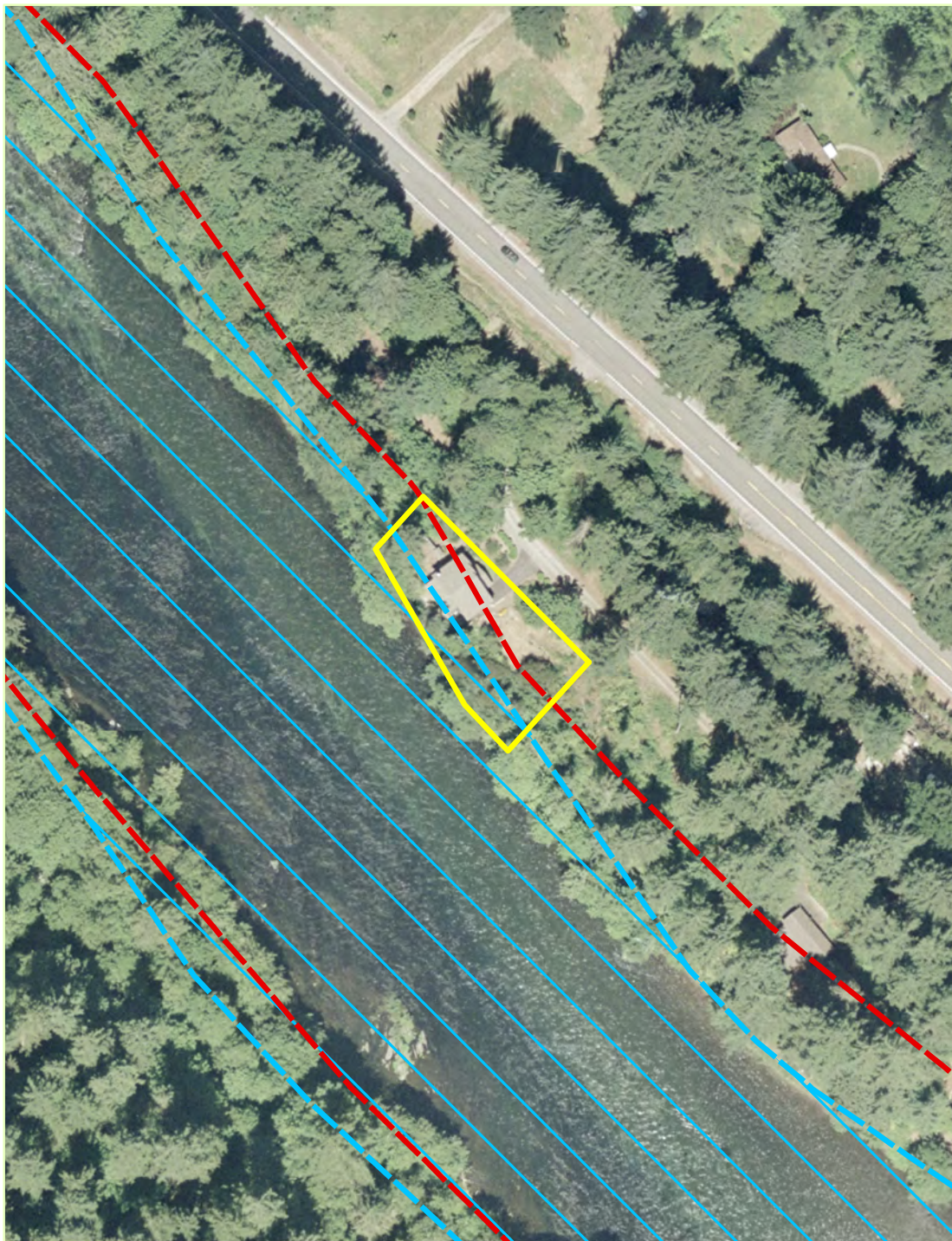
Narrative

Development on this site began in 1988 when it was determined that the shallow lot size necessitated a 20' encroachment into the floodway to uphold the applicant's right to develop (the staff report noted that several other parcels within the McKenzie Palisades Subdivision had the same hardship needs). There is no indication that the DEQ septic regulations regarding soil type and slope were used in siting the septic system, but the file includes mention of soil types on the property, including Peavine silty clay loam with 30-60% slopes on 2/3 of the property and Jimbo silt loam on 1/3 of the property, which would have required more space for the prescribed length of the absorption trench. In 2006 the applicant requested permits to have an existing deck approved and a second story added to the dwelling. It was noted that the maximum frontage of riparian vegetation removal was 50', although the applicant had removed 70'. Approval was granted, provided the applicant did not remove vegetation in the setback area greater than 2500 square feet. The staff report states that the new additions would not change the current footprint.



Implications

The dwelling was built in the floodway, and if a flood occurs contaminants could enter the river. The septic system absorption trench is less than DEQ requirements and the depth is less than what is required for slope. This scenario increases the likelihood of contamination from improperly processed waste. Riparian frontage vegetation has been removed in excess of county standards and the total built area within the riparian setback is 2,328', which translates into a significant amount of impervious surface directly adjacent to the river. This allows run-off to go directly into the river without the mitigation of riparian filtration. The small lot size of this parcel, as well as the adjacent parcels in this subdivision, intensifies the cumulative effects of these risks. Thus, to preserve the development right the code must address the issue of non-conforming lot-sizes created by allowing hardship exceptions.



Land Use Decision Analysis

Maplot: 1635323001001
 Focus Area: Middle McKenzie
 Subfocus Area: Marten Creek

Zoning: RR5
 Acreage: 0.32

-  Study Site
-  Fifty Foot Riparian Setback
-  Floodway
-  100 Year Flood Plain



Entered Date	Permit Number	Permit Type	Description	Status
8/23/2001	CA010054	Compliance	NUISANCE	COMPLETE
4/8/2003	PA035312	Administrative Approval	FP VERIFICATION	COMPLETE
1/14/2004	PA045022	Administrative Approval	RIPARIAN DECLARATION	COMPLETE
1/15/2004	SP047013	Sanitation--Permit	REPAIR-MAJOR	FINAL
3/11/2004	BP040347	Bldg Permit--Residential	SINGLE FAM	FINAL
3/11/2004	BP040348	Demolition Permit	Residential Demolition	FINAL
3/11/2004	SP047066	Sanitation--Permit	REPAIR-MAJOR	CANC
6/23/2004	PA045695	Administrative Approval	FP REVIEW FOR BP	COMPLETE
10/1/2004	BP041809	Mechanical/Plumbing Perm	WOOD STOVE	FINAL
3/4/2005	EL050384	Electrical Permit	Residential Service	FINAL

0 175 350 525 700 Feet

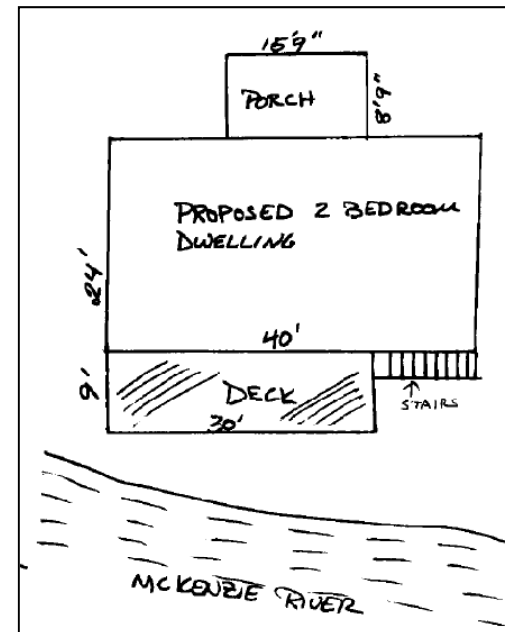
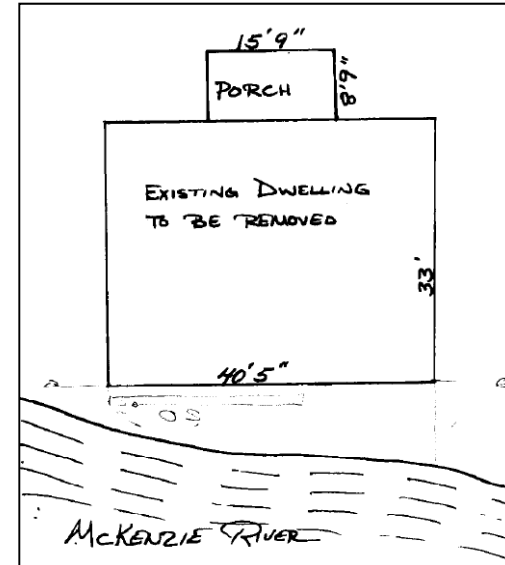
Data Sources: 2005 air photos, tax lots, approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

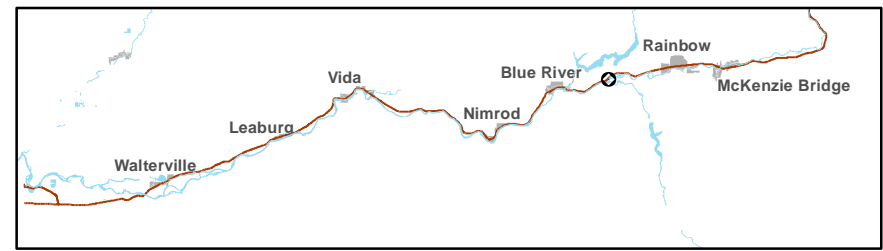
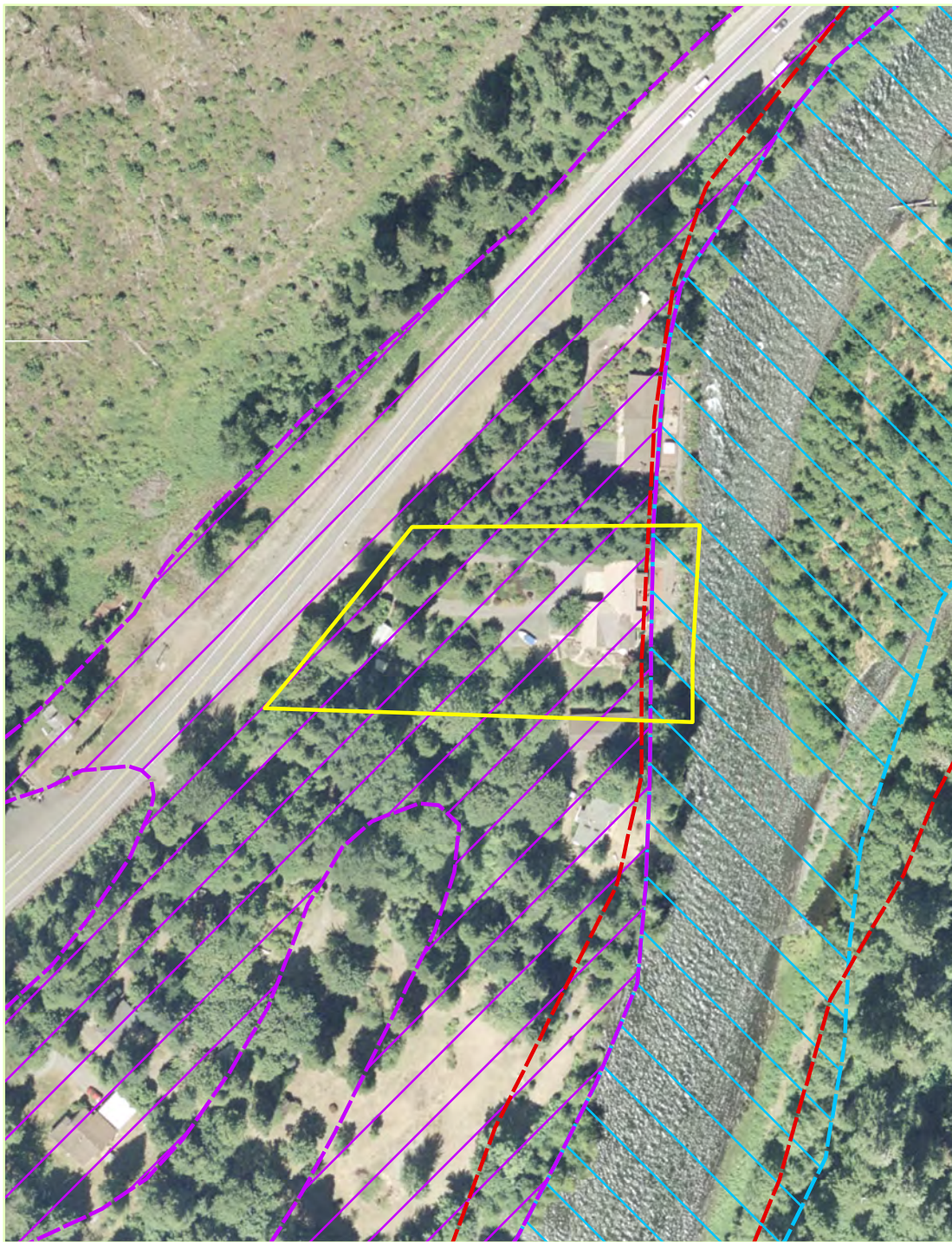
Narrative

Subject parcel is a 0.38-acre parcel in Vida. The original structure was dilapidated and unstable. In 2004, the owner and her agent requested permission to replace the existing structure with a new structure on the same footprint. Upon review, however, it appears that the new structure was actually smaller than the existing footprint. Along with the new structure, the owners installed a new septic system. The original septic tank was only 36' from the river, but the new septic tank was pushed back to 50' from the river. The file is not complete and does not include any staff reports, but it appears that County regulations forced the relocation of the septic tank.

Implications

The case demonstrates Lane County Code working to prevent the expansion of the housing footprint. It is not clear whether this was simply a result of the property owner's site plan, or whether the code demanded the preservation of the footprint. The case is interesting because it demonstrates the possibility of requiring septic tank replacements to conform to current code regulations.





Land Use Decision Analysis

Maplot: 1645230001300
 Focus Area: Upper McKenzie
 Subfocus Area: Blue River

Zoning: RR2
 Acreage: 1.51

- Study Site
- Fifty Foot Riparian Setback
- Floodway
- 100 Year Flood Plain



Entered Date	Permit Number	Permit Type	Description	Status
8/13/1981	BP811750	EVAPPL History	SEWAGE DISP REPAIR	CANC
8/13/1981	BP811750	EVAPPL History	SEWAGE DISP REPAIR	CANC
8/13/1981	BP811750	EVAPPL History	SEWAGE DISP REPAIR	CANC
6/7/1983	BP830910	EVAPPL History	SEWAGE DISP REPAIR	FINAL
6/7/1983	BP830910	EVAPPL History	SEWAGE DISP REPAIR	FINAL
6/7/1983	BP830910	EVAPPL History	SEWAGE DISP REPAIR	FINAL
4/10/1986	BP861076	EVAPPL History	RES SINGLE FAM DWEL	FINAL
4/10/1986	PA861075	EVAPPL History	SPECIAL USE PERMIT	COMP
4/10/1986	PA861075	EVAPPL History	SPECIAL USE PERMIT	COMP
4/10/1986	PA861075	EVAPPL History	SPECIAL USE PERMIT	COMP
6/2/1987	BP871792	EVAPPL History	WOODSTOVE	FINAL
6/2/1987	BP871792	EVAPPL History	WOODSTOVE	FINAL
6/2/1987	BP871792	EVAPPL History	WOODSTOVE	FINAL
9/10/1991	BP912739	EVAPPL History	(blank)	FINAL
9/10/1991	BP912739	EVAPPL History	(blank)	FINAL
9/10/1991	BP912739	EVAPPL History	(blank)	FINAL
2/10/2006	PA065231	Administrative Approval	RIPARIAN DECLARATION	COMPLETE
6/19/2006	PA066093	Director Approval	RIPARIAN SETBACK MODIFY	APPROVED
2/6/2007	BP070190	Bldg Permit--Residential	ADDITION	FINAL
4/16/2007	BP070538	Mechanical/Plumbing Perm	Residential Mech/Plumb	FINAL
6/1/2007	EL070832	Electrical Permit	Service and Feeders	FINAL

Data Sources: 2005 air photos, tax lots, approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

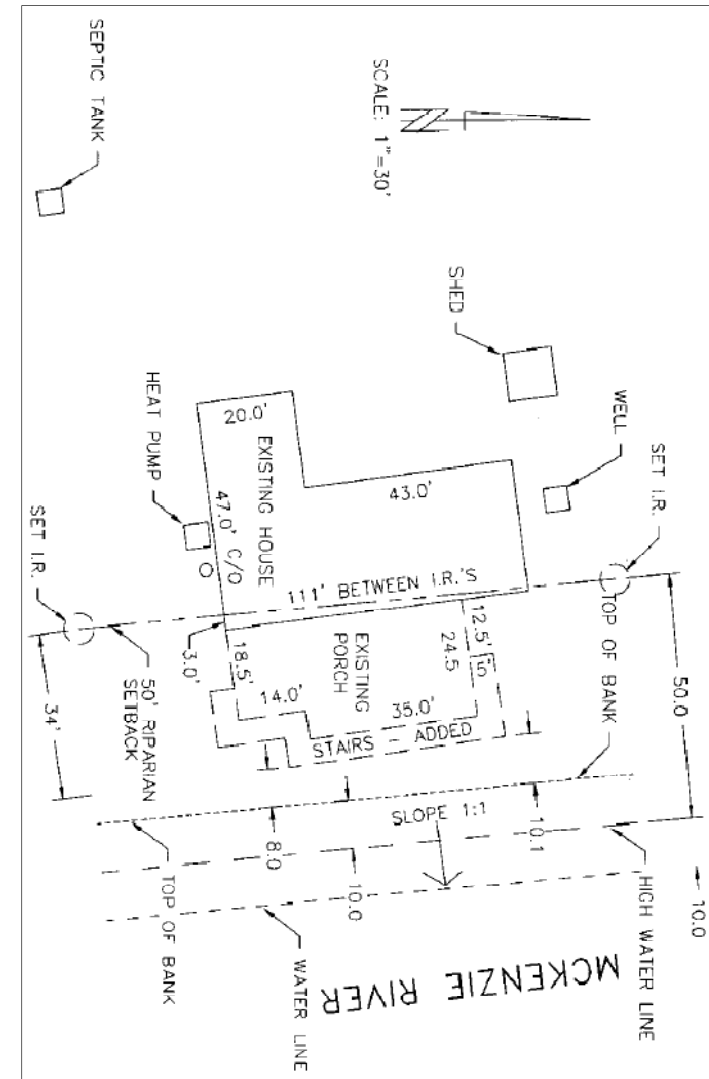
GIS/Cartography: Community Planning Workshop, University of Oregon. 2009.

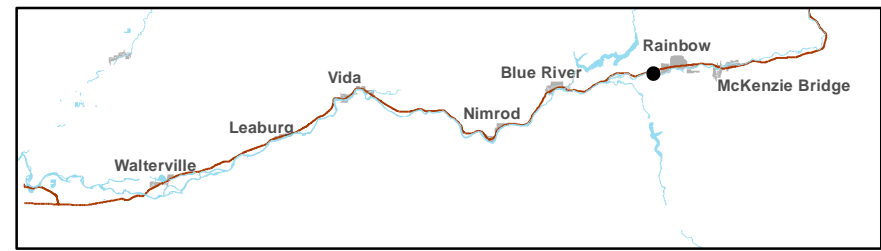
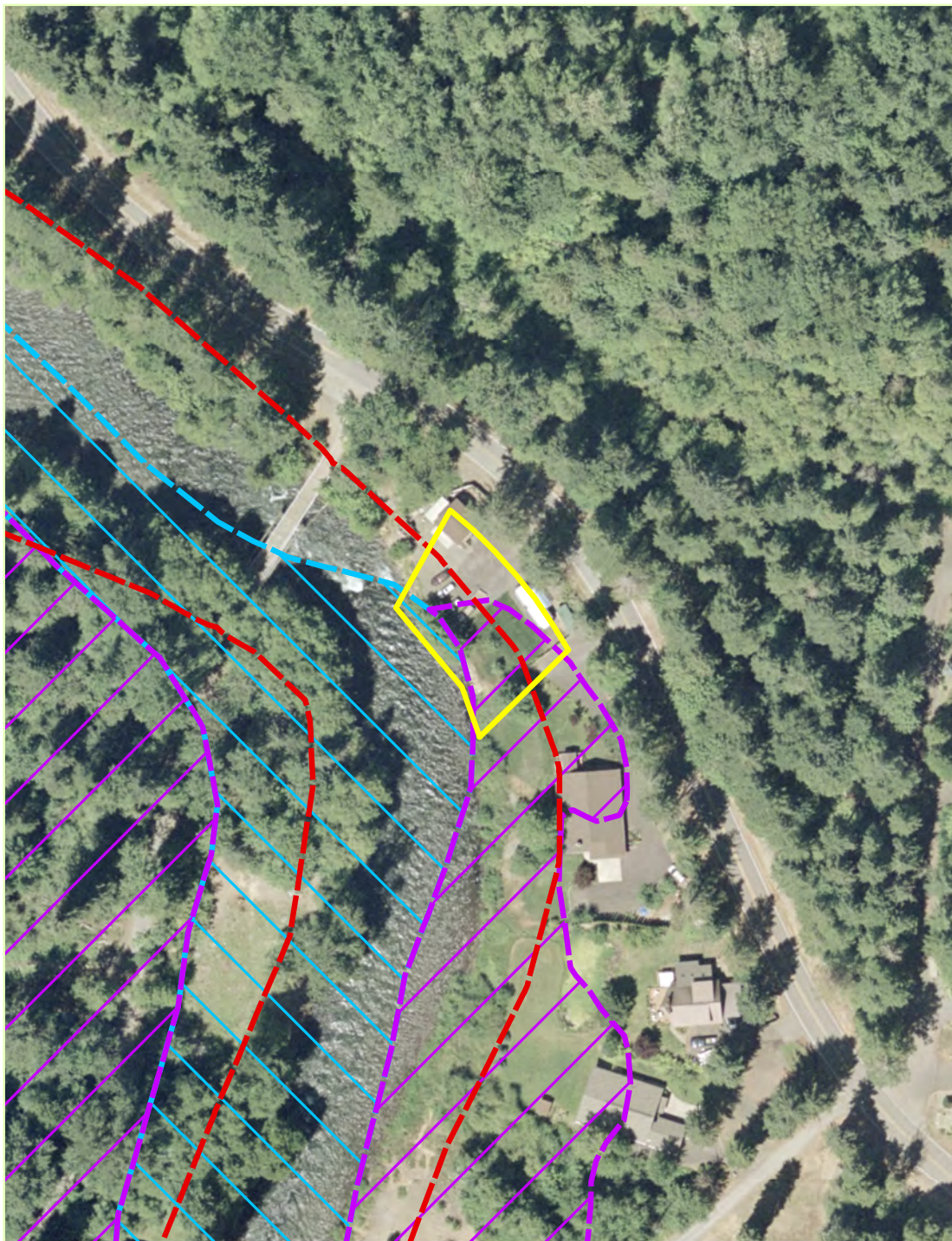
Narrative

The initial dwelling was built in 1987. The subsequent property owner requested a modification to the riparian setback area in order to extend the present home with a structure of 20' by 47'. The new structure would extend to within 18' of the high water mark of the McKenzie River. While conducting a Riparian Declaration in 2006, an engineer found that a portion of the existing house and the entire existing porch were within the riparian zone. The Land Management Division informed the property owner that they would have to pay a fee for a riparian modification for the existing porch. The Division also informed the property owners that the County could not authorize additional footage beyond the 63 feet already occupied by the existing house within the riparian setback. The landowners would need to reduce the existing deck to the allowable 50' for application approval. The property owner responded that the original owner had built the deck at the time the house was built in 1987. They claimed the deck was in poor condition when they purchased it in 1995 so they rebuilt much of it and added steps for safety. The steps exceed the allowable 50'. The property owner also declared there was no native vegetation at the time of purchase. Photos in the file showed little to no vegetation remained next to the river.

Implications

Once the initial dwelling was approved, more additions and modifications were approved. Additions were made to the dwelling without approval, and consequently the property owner was required to get land use approvals retroactively. A key implication is that verification of original dwelling conditions and coverage could determine the legality of subsequent development on the parcel.





Land Use Decision Analysis

Maplot: 1655202200901
 Focus Area: Upper McKenzie
 Subfocus Area: Rainbow

Zoning: RR5
 Acreage: 0.25

- Study Site
- Fifty Foot Riparian Setback
- Floodway
- 100 Year Flood Plain



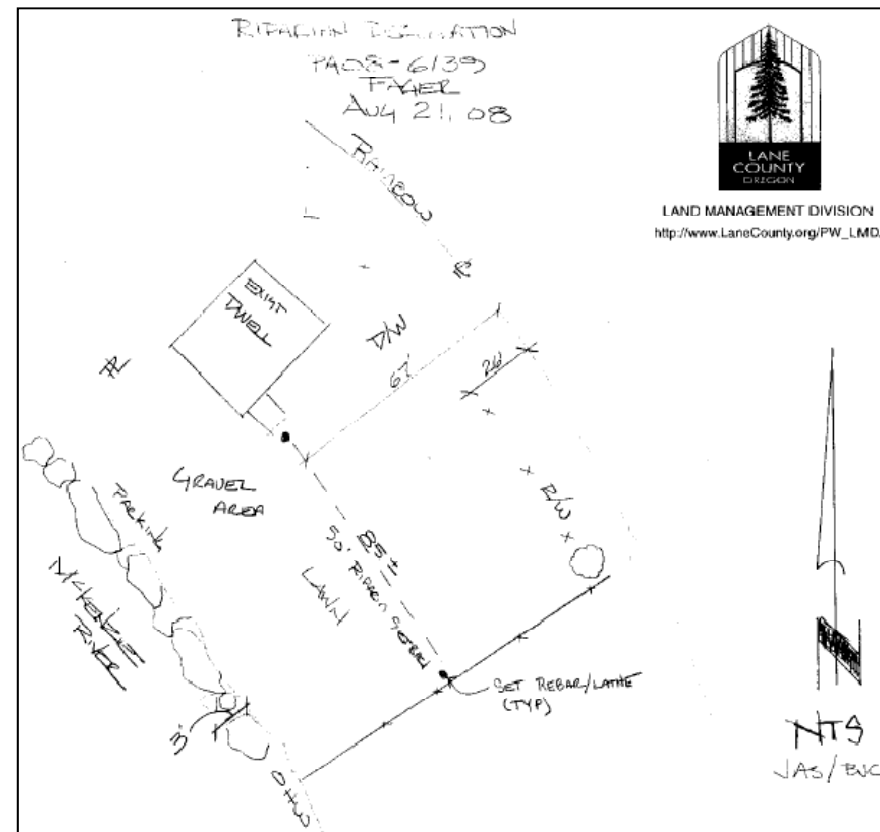
Entered Date	Permit Number	Permit Type	Description	Status
6/21/2004	SP047241	Sanitation--Permit	REPAIR-MAJOR	FINAL
4/5/2005	EL050618	Electrical Permit	Temporary Services	FINAL
5/24/2005	BP050933	Bldg Permit--Residential	ACCESSORY	FINAL
8/9/2005	BP051470	Manufactured Home	Manufactured Dwelling	VOID
8/9/2005	PA056123	Administrative Approval	FP REVIEW FOR BP	COMPLETE
9/2/2005	EL051582	Electrical Permit	Service and Feeders	FINAL
9/7/2005	BP051648	Mechanical/Plumbing Perm	Residential Mech/Plumb	EXPIRED
9/7/2005	BP051649	Mechanical/Plumbing Perm	Residential Mech/Plumb	EXPIRED
10/12/2005	CA050419	Compliance- Enforcement	RECREATIONAL VEHICLE	RVC
5/3/2006	CA060197	Compliance- Enforcement	LAND USE	RVC
4/22/2008	CA080178	Compliance- Enforcement	COMBINATION	ISSUED
7/24/2008	BP081058	Bldg Permit--Residential	ADDITION	FINAL
8/12/2008	PA086139	Administrative Approval	RIPARIAN DECLARATION	COMPLETE
9/4/2008	ZZ080119	Preapplication Review	(blank)	INCOMP

0 175 350 525 700 Feet

Data Sources: 2005 air photos, tax lots, approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

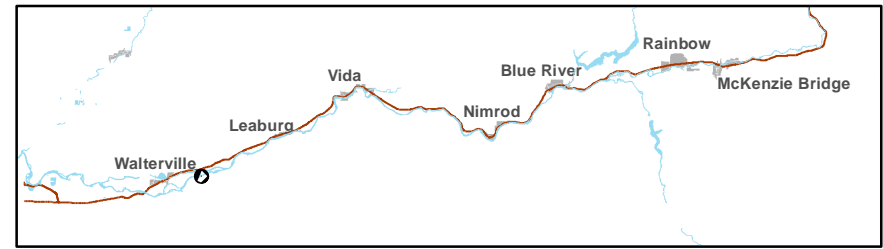
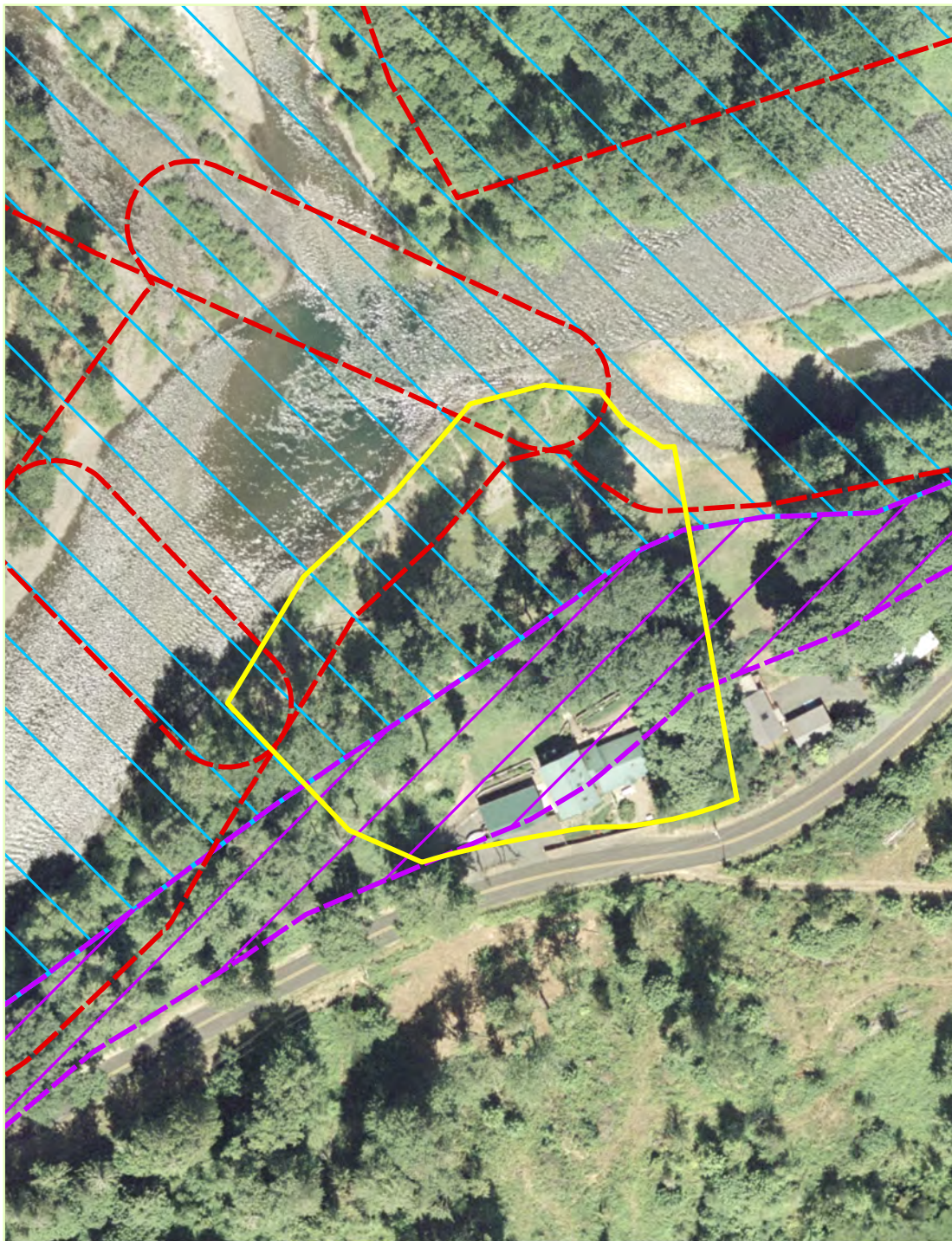
Narrative

In April and May 2008, Lane County sent a request for voluntary correction to the applicant for failure to comply with development standards in Lane Code 11.010, Building Codes and Lane Code 11.015, Permits. Applicant had apparently converted a garage and bonus room to a single family dwelling without obtaining approval from the County. LMD requested the structure be restored to its approved condition, at which point the applicant could pursue the proper building permit process. LMD also requested completion of a residential alteration permit to verify that the structure return to its previously approved condition prior to moving forward with proper building permit process. The non-compliant structure is adjacent to the existing dwelling and bordering the 50' riparian setback. Existing dwelling area has a substantially modified riparian setback area with boulder rock along the bank. DSL sent a cease and desist order addressing the rock in March 2007. The existence of 2 single family dwellings on a parcel zoned RR-5 is incongruent with intent of the zoning code and the unapproved building activity initially bypassed the intent of the building and permitting codes.



Implications

The compliance process appears to have been carried out with the intent of the building and permitting codes, however, the process still allows for increased density within the RR-5 zone. Even if the applicant returns the added structure to its previously approved condition, the property may be used for multiple dwelling units, which is inconsistent with the zoning of the parcel. Most important is the implication that unless non-compliance is verified by the County, violations may go unnoticed and unregulated. This application raises concerns over erosion from lack of riparian vegetation, runoff and erosion potential from the new structure located on the parcel in an area adjacent to the riparian setback area, as well as density issues.



Land Use Decision Analysis

Maplot: 1701234000800
 Focus Area: Lower McKenzie
 Subfocus Area: Waltherville

Zoning: RR5
 Acreage: 2.30

- Study Site
- Fifty Foot Riparian Setback
- Floodway
- 100 Year Flood Plain



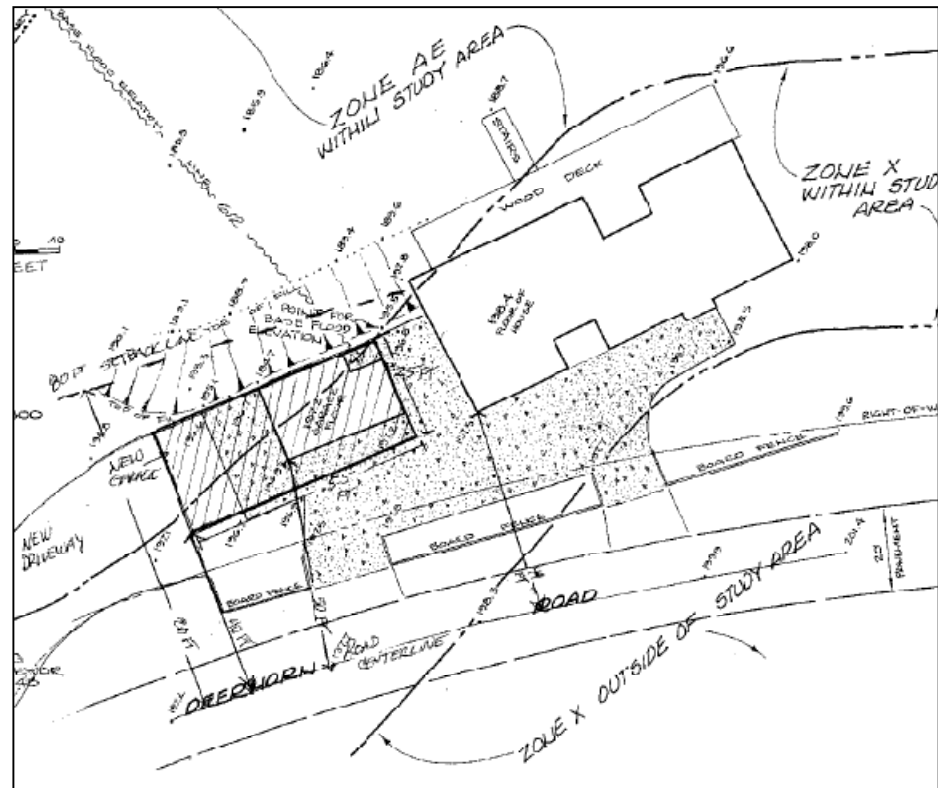
Entered Date	Permit Number	Permit Type	Description	Status
7/19/1984	PA841988	EVAPPL History	SPECIAL USE PERMIT	COMP
8/2/1984	BP842143	EVAPPL History	RES PLAN REVIEW	FINAL
8/2/1984	PA842142	EVAPPL History	SPECIAL USE PERMIT	COMP
9/26/1984	BP842716	EVAPPL History	RES SINGLE FAM DWEL	FINAL
2/11/1987	BP870465	EVAPPL History	WOODSTOVE	FINAL
1/29/1991	BP842034	EVAPPL History	SEPTIC VERIFICATION	FINAL
6/11/1991	PA921753	EVAPPL History	FLOODPLAIN FILL	COMP
5/11/1992	PA921545	EVAPPL History	FLOOD VERIFICATION	COMP
10/21/1992	BP923492	EVAPPL History	(blank)	FINAL
3/16/1993	BP930913	EVAPPL History	(blank)	FINAL
12/17/1996	PA934135	EVAPPL History	SPECIAL USE PERMIT	CANC
12/17/2004	BP042227	Mechanical/Plumbing Perm	WOOD STOVE	FINAL
4/29/2005	PA055550	Director Approval	ROAD SETBACK VARIANCE	APPROVED
9/23/2005	BP051778	Mechanical/Plumbing Perm	Residential Mech/Plumb	FINAL
10/4/2005	EL051807	Electrical Permit	Branch Circuits	FINAL
10/25/2005	CA050430	Compliance- Enforcement	BUILDING	RVC
6/6/2006	ZZ060033	Preapplication Review	(blank)	COMPLETE
6/27/2006	BP061017	Bldg Permit--Residential	ACCESSORY	FINAL
7/7/2006	PA066206	Administrative Approval	FP REVIEW FOR BP	COMPLETE
2/15/2007	EL070233	Electrical Permit	Service and Feeders	FINAL

0 175 350 525 700 Feet

Data Sources: 2005 air photos, tax lots, approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

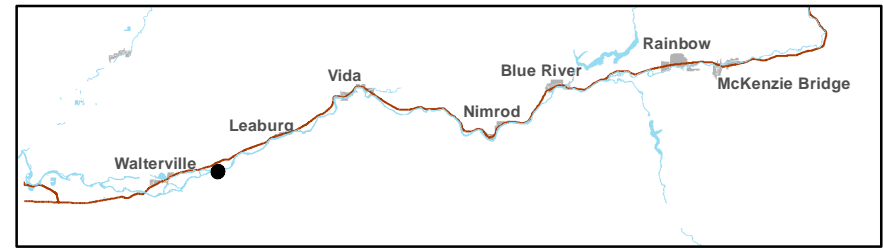
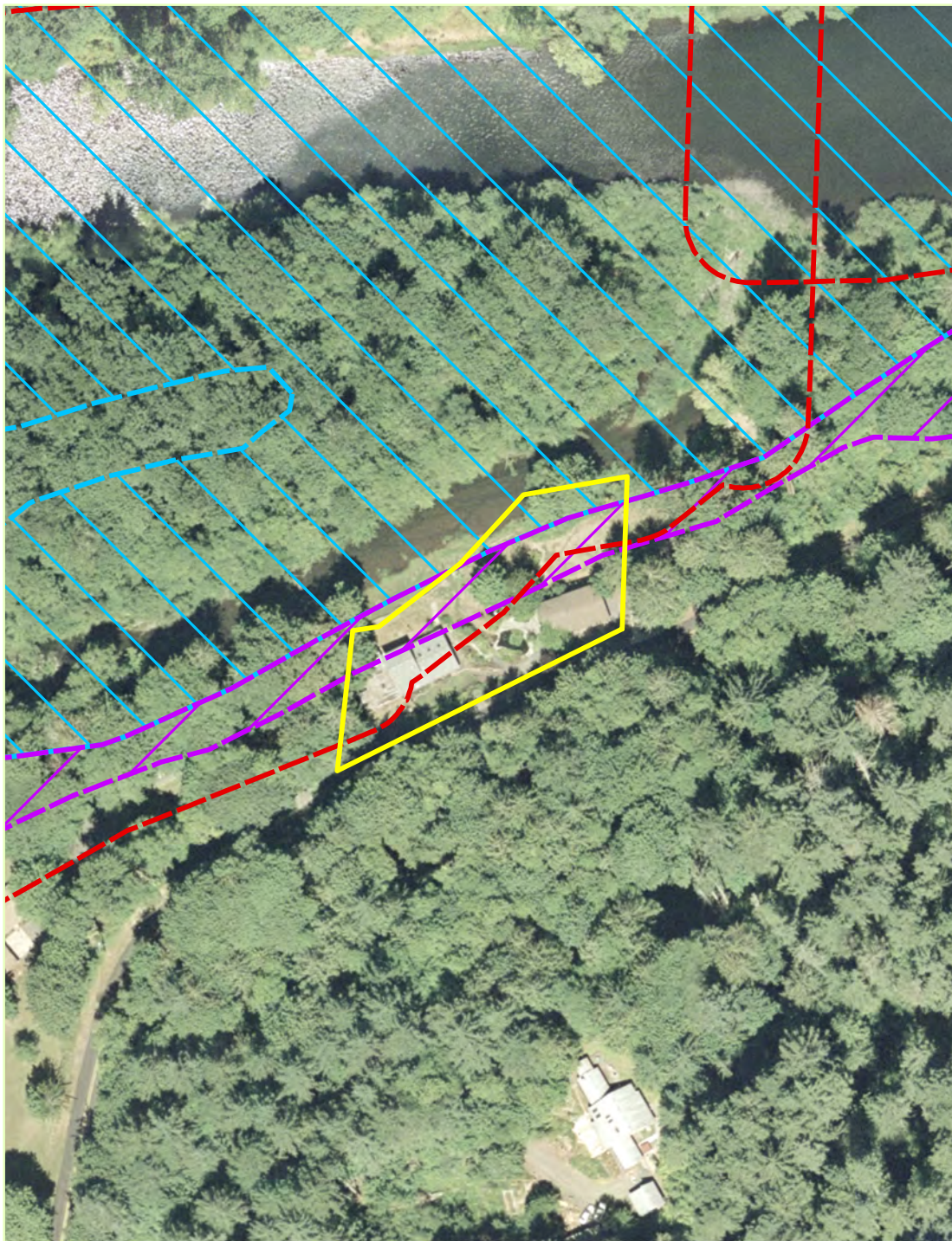
Narrative

The landowner requested a variance to construct a larger garage on the parcel, which is located in the 100-year floodplain. The original garage was built in 1973 on floodplain fill and met requirements at that time, however, the record contained conflicting accounts regarding the fill. Expansions to the garage occurred without permission from Lane County. The new garage would extend 40' into the road setback area in order to avoid filling more of the floodplain area. Filling in the floodplain further would have potentially decreased the McKenzie River's conveyance capacity and may have had significant impact on surrounding properties. The variance was approved as Lane County Transportation Planning found no fault with the site plan. A condition of approval was that a geo-technical report was needed to ascertain that the land could support the expanded garage. This report was not in the file. The building permit for the new garage was approved in July 2006.



Implications

Lane County accepted the applicant's assurance that they would pursue compliance of the unpermitted development activity that had occurred on the property. The granting of a road setback variance rather than a permit to encroach into the riparian setback indicates that the integrity of the riparian zone was a higher priority than the right of way requirements in this particular case. However, the approval for the road set back modification implies that the right of the land owner to expand development on their property supercedes the need to standardize building setbacks along Deerhorn Road.



Land Use Decision Analysis

Maplot: 1701240002900
 Focus Area: Lower McKenzie
 Subfocus Area: Waltherville

Zoning: RR5
 Acreage: 0.58

-  Study Site
-  Fifty Foot Riparian Setback
-  Floodway
-  100 Year Flood Plain



Entered Date	Permit Number	Permit Type	Description	Status
5/22/1990	BP901586	EVAPPL History	SEWAGE DISP REPAIR	FINAL
4/5/2005	PA055433	Administrative Approval	RIPARIAN DECLARATION	COMPLETE
5/12/2005	PA055628	Administrative Approval	FP VERIFICATION	COMPLETE
6/9/2005	BP051055	Bldg Permit--Residential	SINGLE FAM	FINAL
10/11/2005	EL051846	Electrical Permit	Residential Service	FINAL
11/3/2005	BP052056	Mechanical/Plumbing Perm	PELLET STOVE	EXPIRED

0 175 350 525 700 Feet

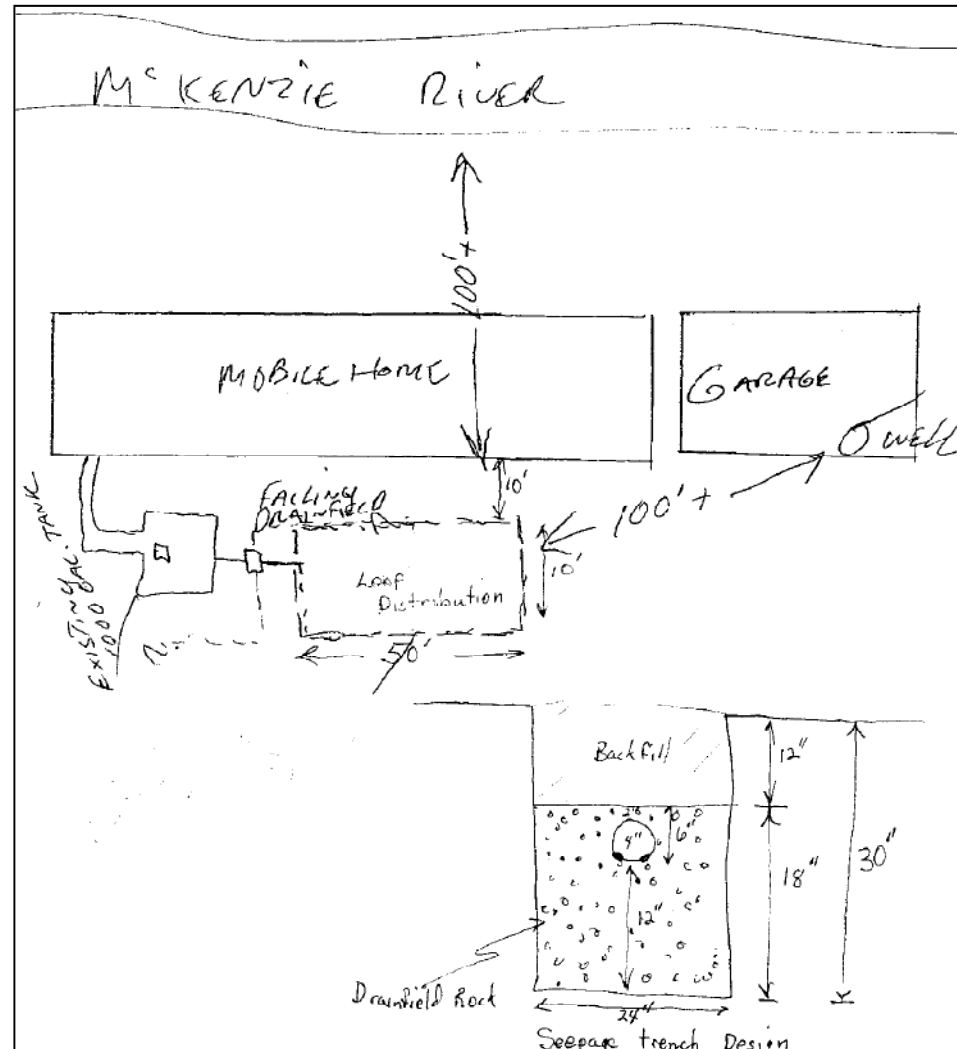
Data Sources: 2005 air photos, tax lots, approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

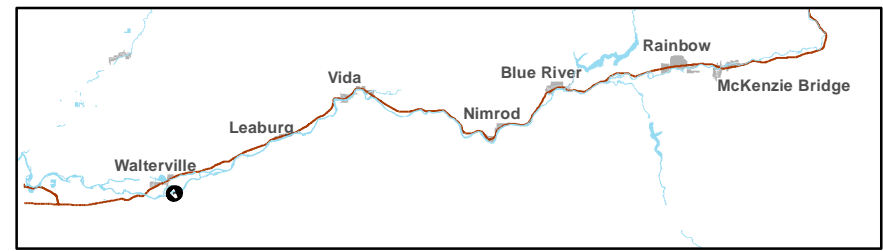
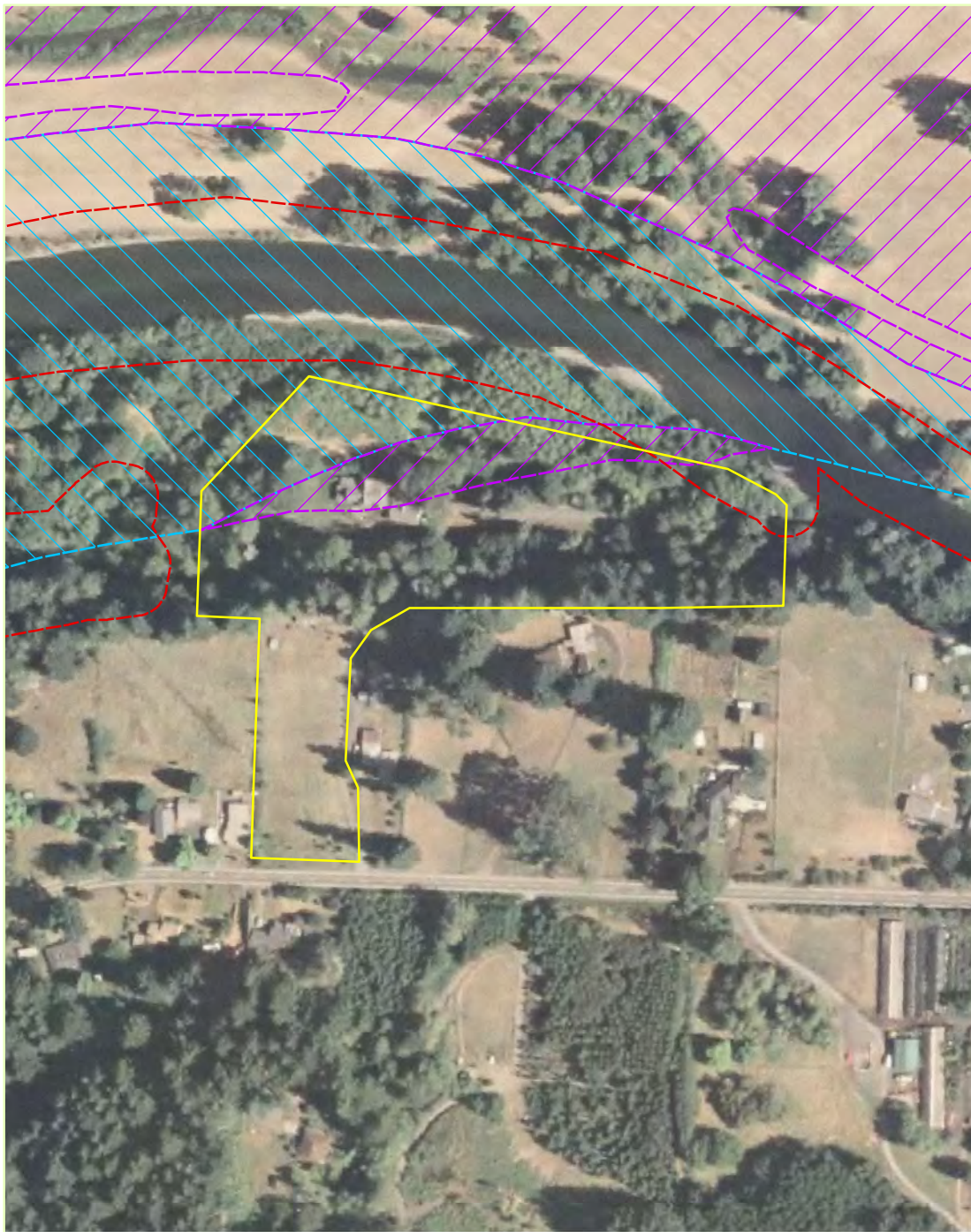
Narrative

The applicant requested permission to build a single family dwelling, proposed as a two story house with a covered porch. The parcel is 0.65 acres and zoned Rural Residential-5 (RR-5). The building permit was for a replacement dwelling for a mobile home. The riparian declaration indicated that the building was 14 and 15 feet from the ordinary high water mark at its corners. The replacement dwelling will encroach into the riparian area and is located on a shelf of the McKenzie River bank which rises 8' about the river. A determination of legal lot status was not required because this will be a replacement dwelling. A box was checked on the permit form indicating the parcel is in the floodplain, but an earlier notation wrote that it was outside of the flood hazard area. A septic repair permit was also on file in this folder.

Implications

The shelf formation may create erosion and/or slope risks that were not addressed in the development review. The 0.65 acre parcel in an RR-5 zone is inconsistent with the minimum lot size standard and may exacerbate water quality vulnerability due to development density. In this instance, the criteria for permit approval appears to have prioritized the 50' road setback over the 50' riparian setback.





Land Use Decision Analysis

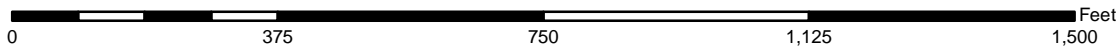
Maplot: 1701270000701
 Focus Area: Lower McKenzie
 Subfocus Area: Waltherville

Zoning: RR5
 Acreage: 7.59

-  Study Site
-  Fifty Foot Riparian Setback
-  Floodway
-  100 Year Flood Plain



Entered Date	Permit Number	Permit Type	Description	Status
3/30/1995	PA980968	EVAPPL History	FP DWELLING	COMP
9/18/1995	PA973099	EVAPPL History	FLOOD VERIFICATION	COMP
5/2/1996	PA981396	EVAPPL History	SPECIAL USE PERMIT	COMP
6/4/1997	PA981563	EVAPPL History	LEGAL LOT VERIFICATION	COMP
6/22/1998	SI980100	EVAPPL History	SITE INSPECTION	APPROVED
9/17/1998	SP981827	Sanitation--Permit	INSTALLATION	FINAL
9/17/1998	BP981827	Bldg Permit--Residential	SINGLE FAM	FINAL



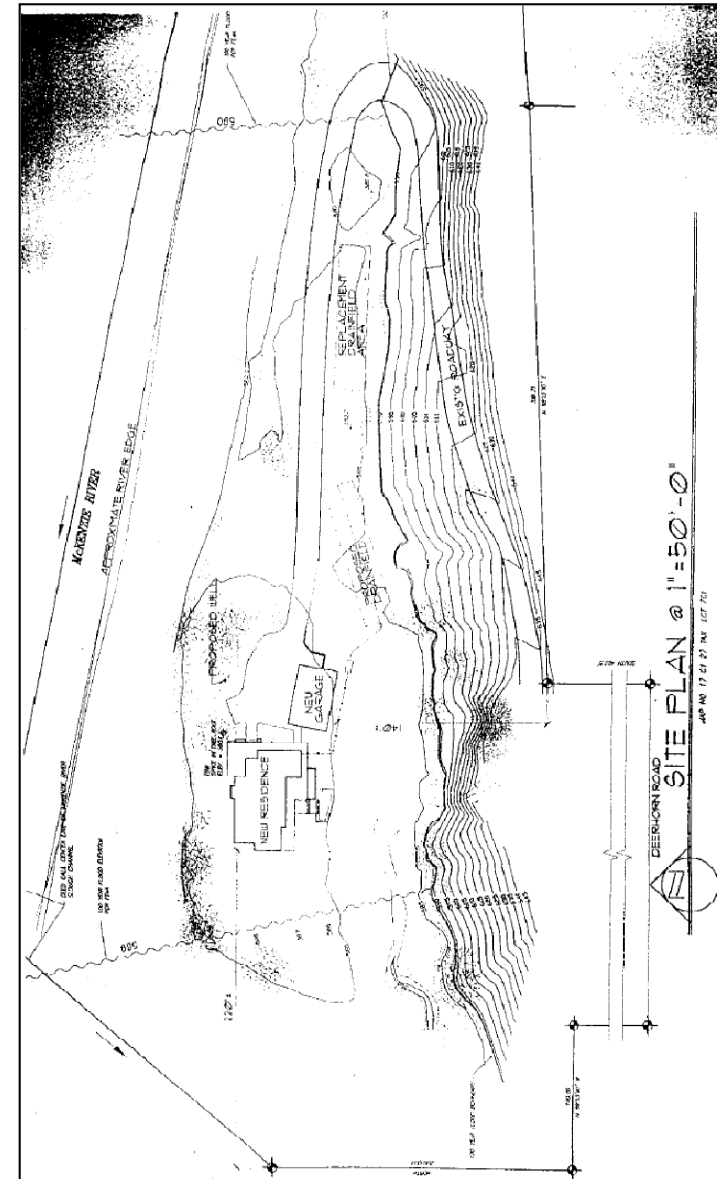
Data Sources: 2005 air photos - Oregon Imagery Explorer (OSU)
 Tax lots and approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

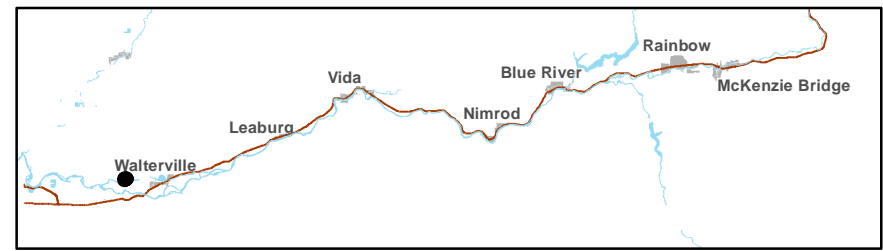
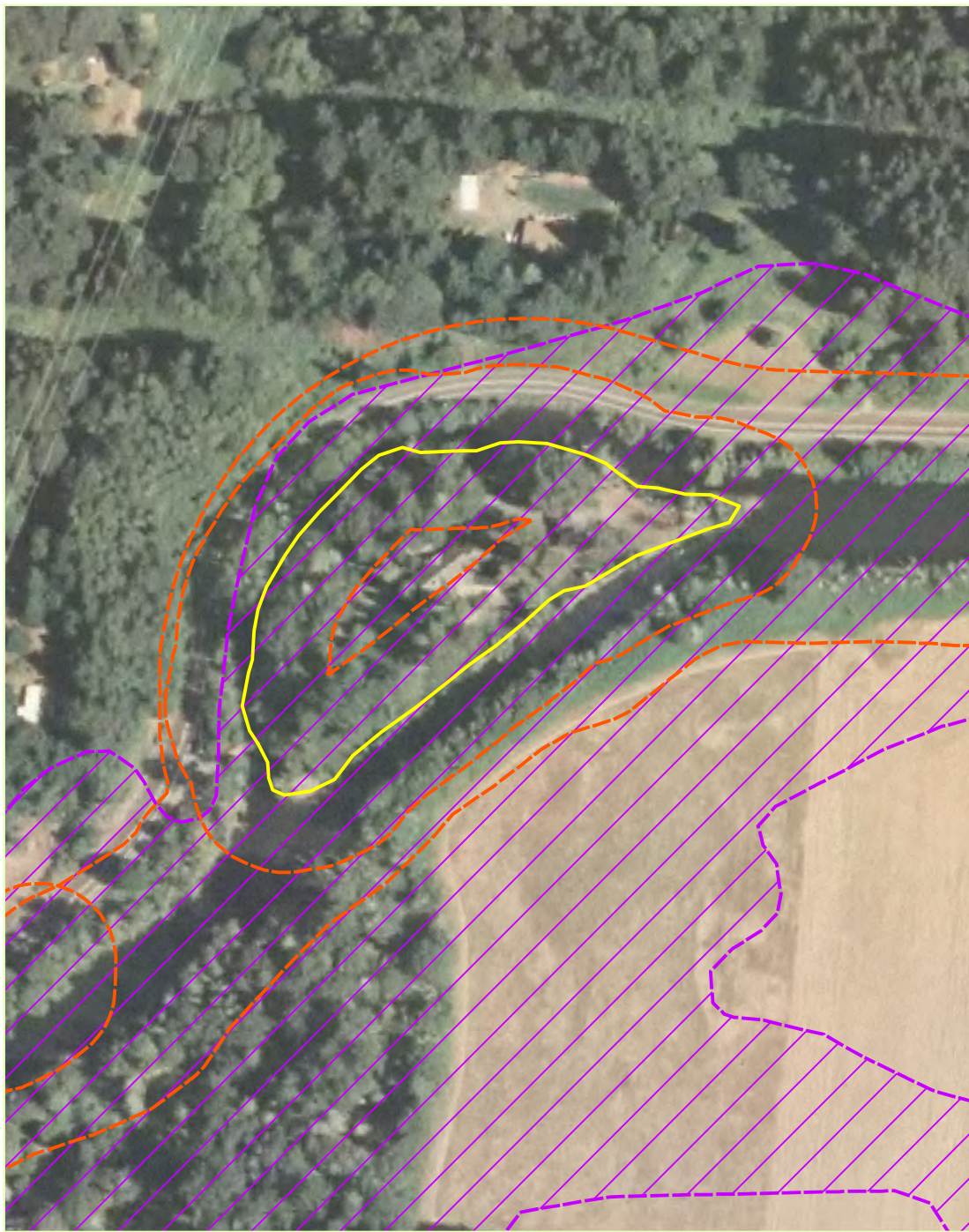
Narrative

In 1997 and 1998 the landowners applied for floodplain verification, floodplain development, and riparian declaration permits. A legal lot verification also was obtained. The proposed dwelling is located within the floodway in a historic meander zone. The property was flooded along the northern edge in 1996. Wetlands occur on the property and there is a waterfall pool on the property that required a 200-foot setback for the septic tank. When the owners applied for floodplain verification for a two-bedroom home in 1998, Lane County staff required a floodplain development permit. The landowners elected to fill the site to bring the ground to elevation above the base flood elevation. The site preparation also required re-grading an old river bank subject to erosion during periods of extreme high water. The property owners also proposed to replant the area with native vegetation to decrease the potential of erosion. The proposal was approved with the conditions that the proposed construction be approved by the Planning, Sanitation and Building Programs. The building is outside of the riparian setback, but a removal of 162-feet of linear riparian was requested and granted. Only 100-feet is permissible for the 1,031-feet of frontage the property has on the McKenzie River.

Implications

The allowance of a dwelling within the floodway suggests that the code language requiring development occur so as to minimize flood damage can lead to significant permitting activity, manipulation of floodplain meander zones, and riparian vegetation removal. Meanwhile, the subject property is still vulnerable to flooding, which is a health and safety risk. The discrepancy between the allowed riparian vegetation removal and the actual vegetation removed is also a concern.









Land Use Decision Analysis

Maplot: 1701300000502
 Focus Area: Lower McKenzie
 Subfocus Area: Camp Creek

Zoning: F2
 Acreage: 3.23

-  Study Site
-  One Hundred Foot Riparian Setback
-  Floodway
-  100 Year Flood Plain



Entered Date	Permit Number	Permit Type	Description	Status
10/24/1990	PA903659	EVAPPL History	SPECIAL USE PERMIT	COMP
5/17/1991	PA911472	EVAPPL History	FLOOD VERIFICATION	COMP
5/17/1991	PA911473	EVAPPL History	(blank)	COMP
9/19/1991	BP912887	EVAPPL History	RES ACCESSORY	FINAL
12/16/1992	BP924139	EVAPPL History	MANUF DWEL	FINAL
12/16/1992	PA924138	EVAPPL History	FP MANUF. HOME	COMP
3/8/1993	SI930070	EVAPPL History	SITE INSPECTION	APPROVED
12/26/2001	PA016386	Administrative Approval	VERIFY REPLACEMENT RIGHT	COMPLETE
12/26/2001	PA016387	Director Approval	FP WET FLOODPROOFING	APPROVED
12/26/2001	PA016388	Director Approval	RIPARIAN SETBACK MODIFY	APPROVED
6/5/2002	BP021048	Bldg Permit--Residential	SINGLE FAM	FINAL
6/27/2002	BP021181	Bldg Permit--Residential	ACCESSORY	FINAL
2/17/2004	BP040211	Mechanical/Plumbing Perm	Residential Mech/Plumb	FINAL
10/5/2006	CA060335	Compliance- Enforcement	COMBINATION	RVC

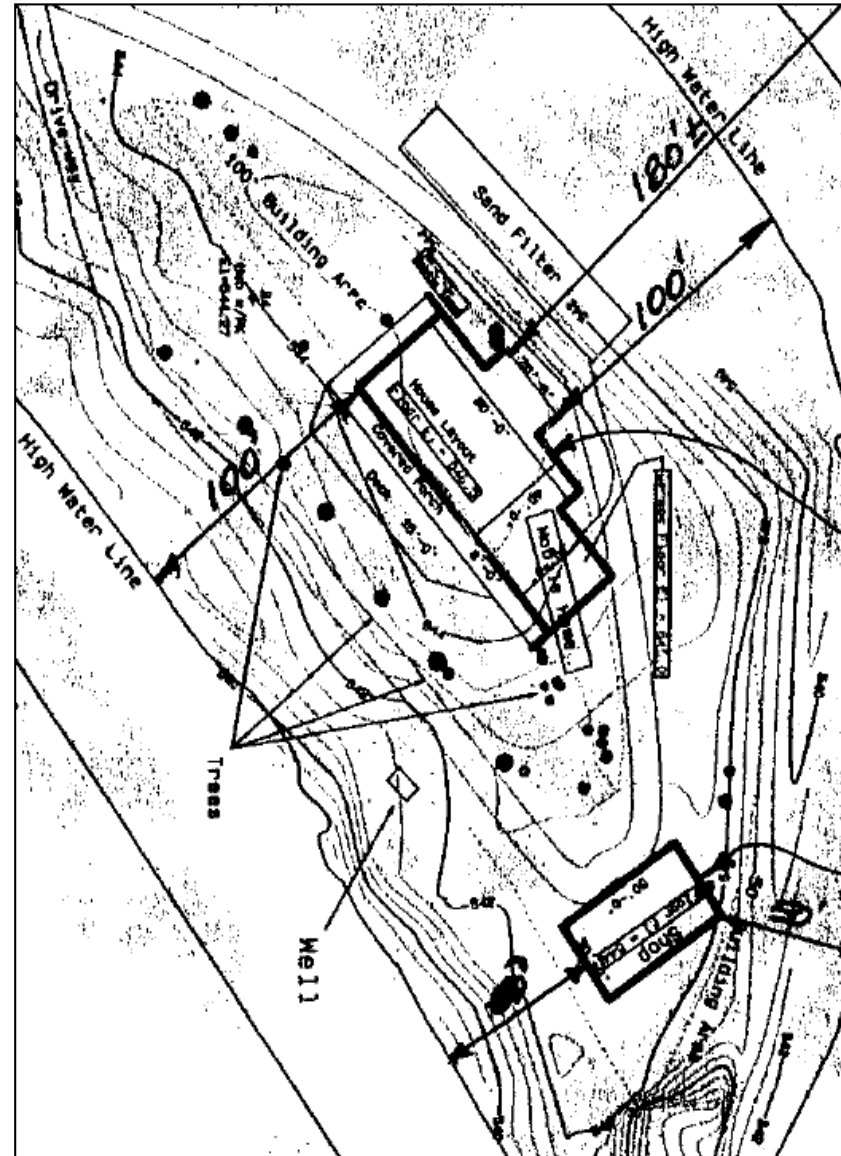
Data Sources: 2005 air photos - Oregon Imagery Explorer (OSU)
 Tax lots and approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

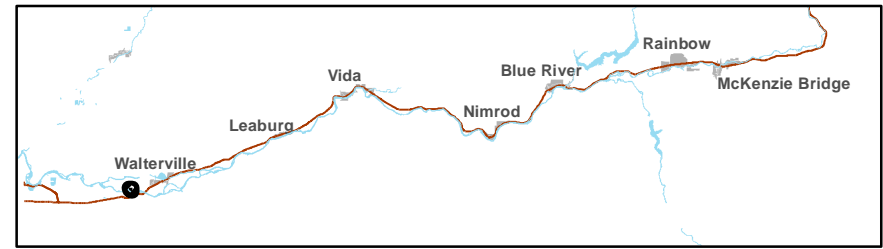
Narrative

The parcel is located on an island in the tail race of EWEB's Waltherville hydroelectric facility. In December 2001 a request was submitted for a replacement dwelling. LMD required verification of a "lawfully established dwelling" prior to approval of the replacement dwelling. Precedent had been set by approval of a mobile home in 1990; a driveway, sand-filter septic system, a well, and a bridge across the tail race, all approved in 1991. The 1991 staff report stated the property was 2.75-acres, while current lot size is 1.96-acres. The applicant filed for a riparian setback modification and a variance to floodplain requirements along with a special use permit to build a replacement dwelling. The proposed replacement dwelling site was in approximately the same location as the existing mobile home and outside the 100' setback of the high water mark. LMD found the applicant need only procure a special use permit to allow a replacement dwelling within a flood hazard area. In 2002, LMD approved a floodplain variance for an accessory structure in the flood hazard area and a riparian setback modification for a deck, covered porch, and the accessory structure.

Implications

Each step in the development of this site required permits for development within the flood hazard area. The special use permit for a dwelling in an F-2 zone for the original structure and the bridge, as well as the replacement dwelling permit process required procurement of the floodplain special use permit. In addition, the sanitation system was held to the minimal flood inundation or damage standard. This case suggests that floodplain development regulations allowed for more intense land use following the initial approved development.









Land Use Decision Analysis

Maplot: 1701300002201
 Focus Area: Lower McKenzie
 Subfocus Area: Waltherville

Zoning: E30
 Acreage: 24.50

-  Study Site
-  One Hundred Foot Riparian Setback
-  Floodway
-  100 Year Flood Plain



Entered Date	Permit Number	Permit Type	Description	Status
6/13/1983	BP830952	EVAPPL History	RES PLAN REVIEW	CANC
4/30/1984	PA841149	EVAPPL History	HO SPECIAL USE	COMP
4/30/1984	PA841150	EVAPPL History	HO SPECIAL USE	COMP
12/5/1984	BP843303	EVAPPL History	RES SINGLE FAM DWEL	FINAL
10/16/1991	PA953162	EVAPPL History	FLOODPLAIN FILL	COMP
3/26/1993	PA961054	EVAPPL History	FLOODPLAIN FILL	COMP
4/11/1996	PA841148	EVAPPL History	HO SPECIAL USE	COMP
4/13/1998	PA841147	EVAPPL History	RIPARIAN MODIFICATION	COMP
9/6/2000	BP001559	Mechanical/Plumbing Perm	Residential Mech/Plumb	FINAL

0 400 800 1,200 1,600 Feet

Data Sources: 2005 air photos - Oregon Imagery Explorer (OSU)
 Tax lots and approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

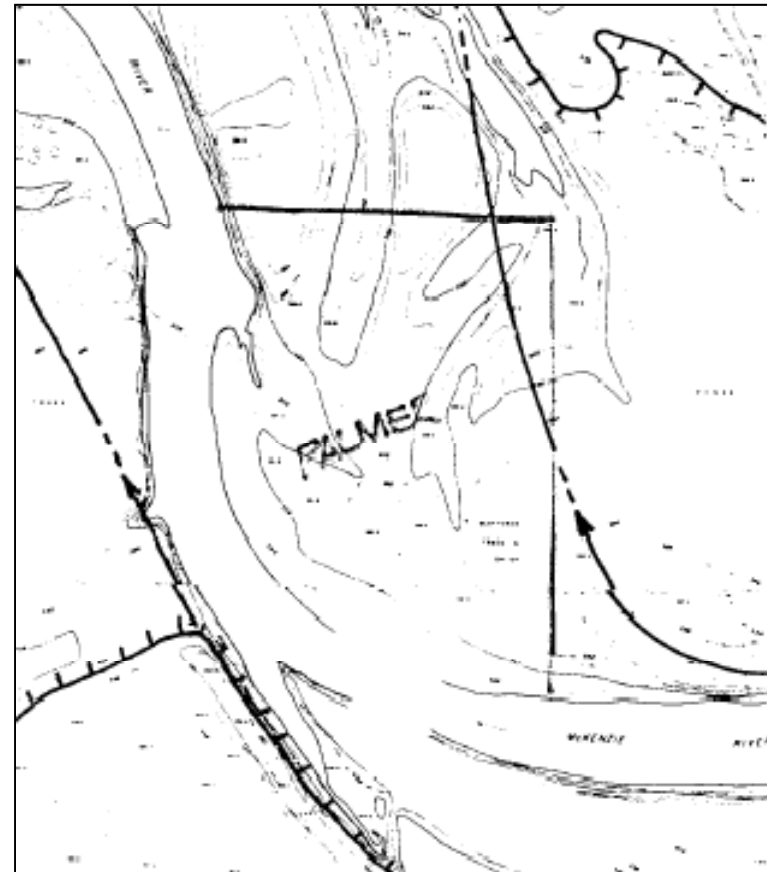
Narrative

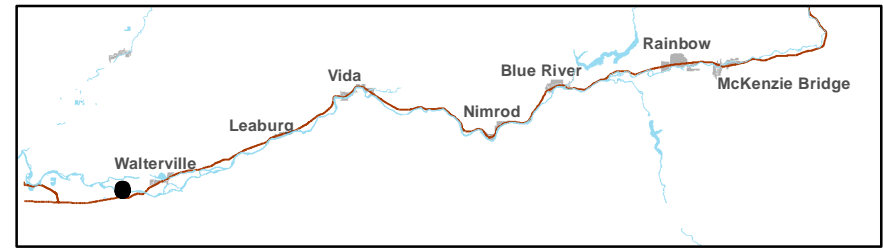
The subject parcel is 13.5-acres is a wooded site that is designated Agricultural Land in the Rural Comprehensive Plan, zoned E-30, Exclusive Farm Use Zone, 30-acre minimum lot size. The property is located within the floodway, adjacent to the McKenzie River.

Applicants submitted a request for special use to allow a dwelling not provided in conjunction with a farm use within an E-30 zone, pursuant to LC 16.212(4)(j). An application for special use was subject to satisfactory resolution of flood hazard related items, according to the staff report from June 7, 1984. The report includes approval criteria and analysis of each criterion for special use, non-conforming use, and flood hazard development. Staff found applicants failed to satisfy non-conforming use criteria with regards to construction of a driveway below the base flood level, as well as the criteria for construction of a dwelling in a flood hazard. Staff report recommended denial of the combined permit application.

Implications

Ultimately, the decision carried out the intent of the flood ordinance by prohibiting any development that would increase flood levels. The flood ordinance in its current state does not define criteria related to water quality and public health standards.





Land Use Decision Analysis

Maplot: 1701300002301
 Focus Area: Lower McKenzie
 Subfocus Area: Camp Creek

Zoning: ML
 Acreage: 14.83

-  Study Site
-  Fifty Foot Riparian Setback
-  Floodway
-  100 Year Flood Plain



Entered Date	Permit Number	Permit Type	Description	Status
9/7/2001	SI019234	Sanitation--Site Inspect	RESIDENTIAL	APPROVED
12/3/2001	SP017408	Sanitation--Permit	INSTALLATION	FINAL
2/4/2002	BP020193	Bldg Permit--Residential	SINGLE FAM	FINAL
2/22/2002	PA025283	Administrative Approval	FP REVIEW FOR BP	COMPLETE
6/2/2004	PA045548	Administrative Approval	LAND USE COMPATIBILITY	COMPLETE
6/21/2004	PA045618	Director Approval	FLOODWAY PERMIT	APPROVED
10/22/2004	PA046202	Director Approval	RIPARIAN DEV. PLAN	DENIED
10/22/2004	PA046203	Administrative Approval	FP FILL/REMOVAL <500 CU YDS	CANCEL
5/21/2007	PA075730	Administrative Approval	EXTENSION OF APPROVAL	COMPLETE
6/6/2008	PA085677	Administrative Approval	EXTENSION OF APPROVAL	COMPLETE

0 375 750 1,125 1,500 Feet

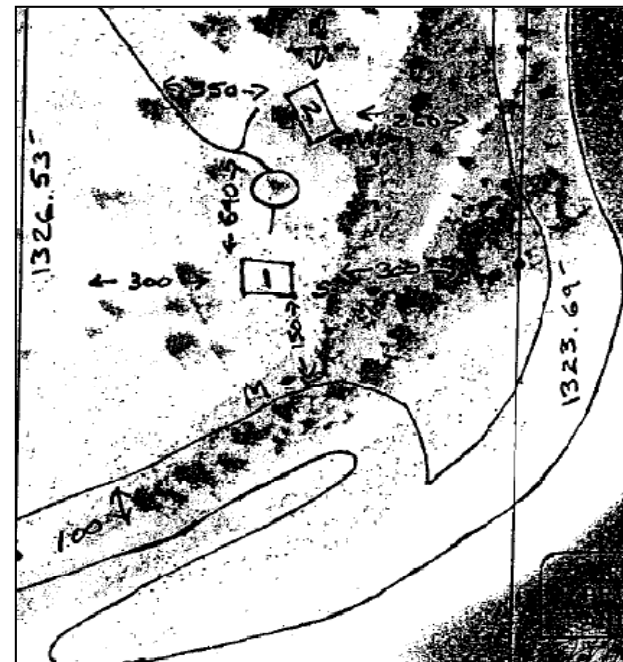
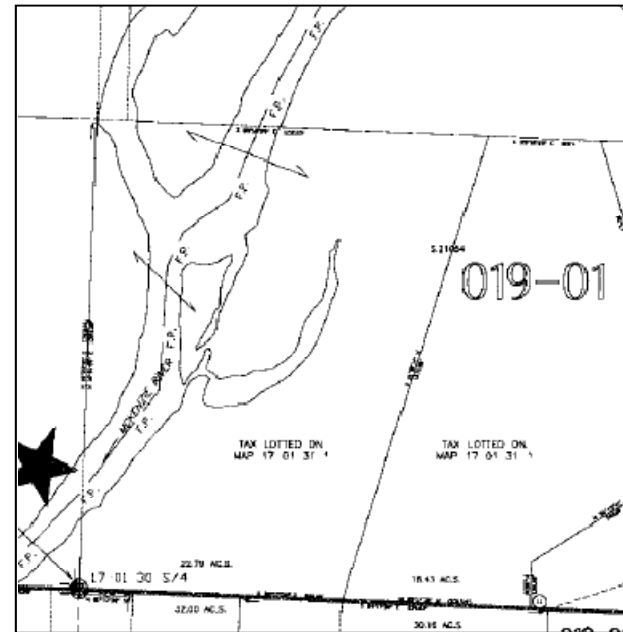
Data Sources: 2005 air photos - Oregon Imagery Explorer (OSU)
 Tax lots and approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

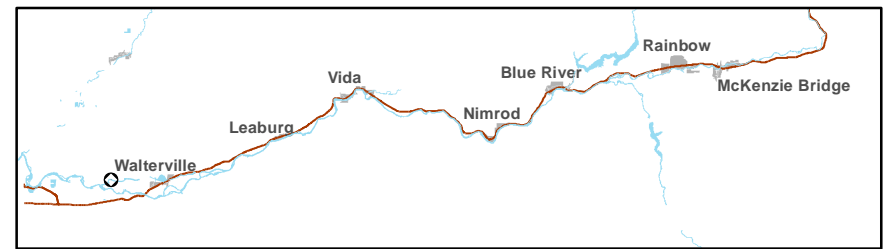
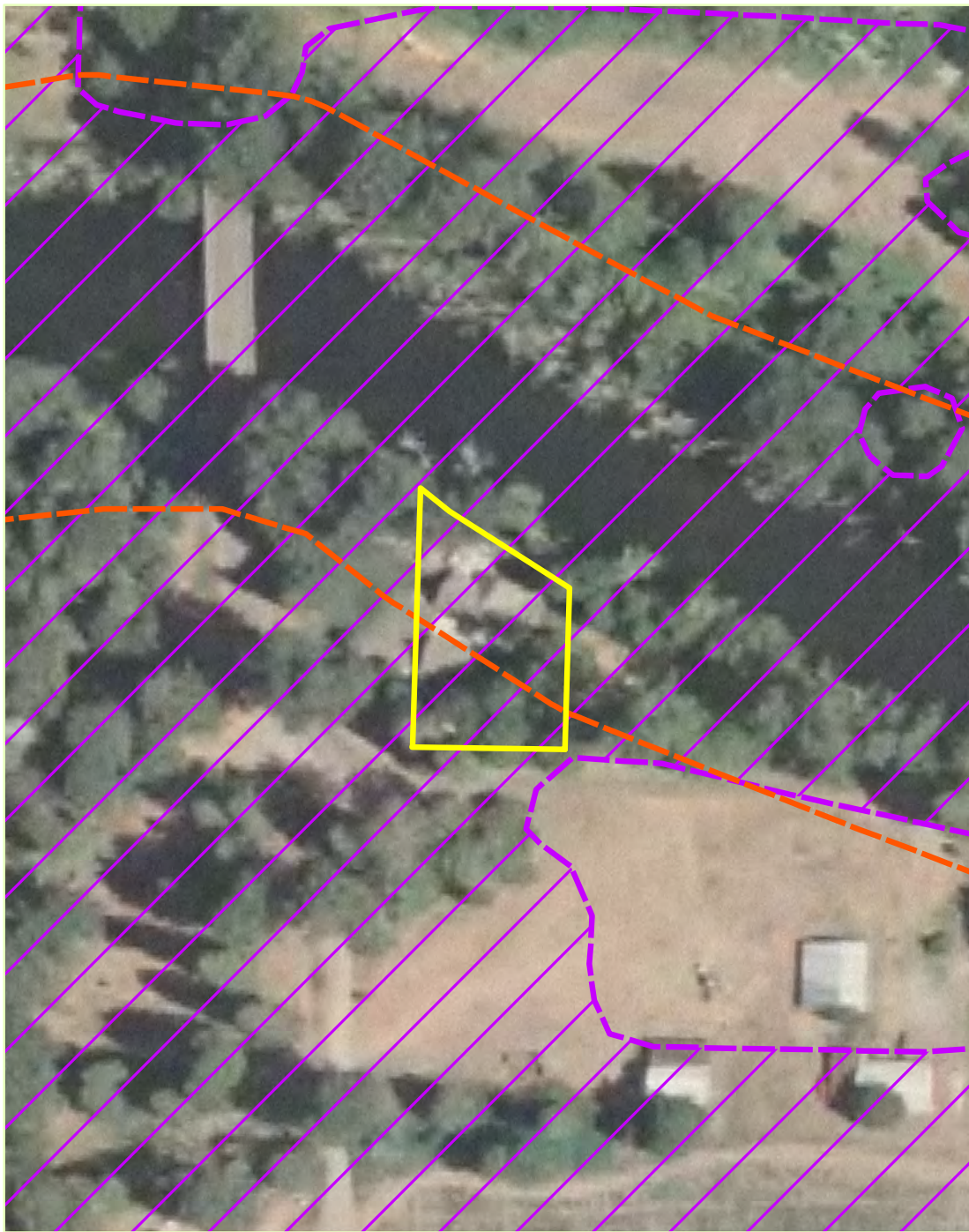
Narrative

The subject parcel is 18.75 acres and located near Camp Creek Road, between Springfield and Waltherville. In 2000, the previous property owner applied for a Floodplain Development permit. As a part of the application process, the property owner met with staff from the Oregon Department of Fish and Wildlife. The outcome of the meeting was that the property owner revised his Floodplain Development permit application to move the location of the proposed development. The property was then sold and the new owner applied for and received the floodplain development permit for a house and shop in the regulatory floodway in 2003 (a different location than the previous owner had applied for). The building permit was approved in 2002, but CPW not locate the permit. The development plan met the flood hazard reduction requirements and an engineer certified that it would not increase the flood levels. In June 2005, the current owner applied to dig a 500-foot trench for bank stabilization to prevent against future changes in the river course. His application was denied because the 500-foot trench would exceed the riparian frontage he was allowed to alter and because his application was incomplete. In July 2005, the current owner received approval from DSL and Lane County to put 900 cubic yards of fill along 500 feet of shoreline to mitigate erosion.

Implications

County approval of the floodplain development permit led to emergency bank protection measures that would have likely been unnecessary otherwise. The case suggests that Lane County Code allows development that may require additional measures that affect the function of the river and its floodplain, such as bank stabilization, to protect property. In addition, the case demonstrates the limited role of ODFW in the permit review and approval process. While ODFW was successful in working with the previous owner to locate the building site away from the river, the current owner reversed course and built within the floodway.





Land Use Decision Analysis

Maplot: 1702250000400

Focus Area: Lower McKenzie

Subfocus Area: Camp Creek

Zoning: E30

Acreage: 0.40

-  Study Site
-  One Hundred Foot Riparian Setback
-  Floodway
-  100 Year Flood Plain



Entered Date	Permit Number	Permit Type	Description	Status
4/13/1988	SI880063	EVAPPL History	SITE INSPECTION	APPROVED
6/13/1988	PA881692	EVAPPL History	SPECIAL USE PERMIT	COMP
6/13/1988	PA881693	EVAPPL History	(blank)	COMP
1/24/1989	BP890168	EVAPPL History	RES ACCESSORY	FINAL
1/24/1989	BP890169	EVAPPL History	MANUF DWEL	FINAL
1/24/1989	PA890167	EVAPPL History	FP MANUF. HOME	COMP
2/28/1989	PA890496	EVAPPL History	WET FLOODPROOFING	COMP
8/11/2000	PA006097	Administrative Approval	VERIFY REPLACEMENT RIGHT	COMPLETE
6/25/2002	BP021173	Bldg Permit--Residential	SINGLE FAM	FINAL
7/22/2002	PA025792	Administrative Approval	FP FILL/REMOVAL <500 CU YDS	COMPLETE
4/24/2003	BP030668	Mechanical/Plumbing Perm	Residential Mech/Plumb	FINAL

Data Sources: 2005 air photos - Oregon Imagery Explorer (OSU)

Tax lots and approximate river channel - LCOG

Floodway and Floodplain - FEMA DFIRM

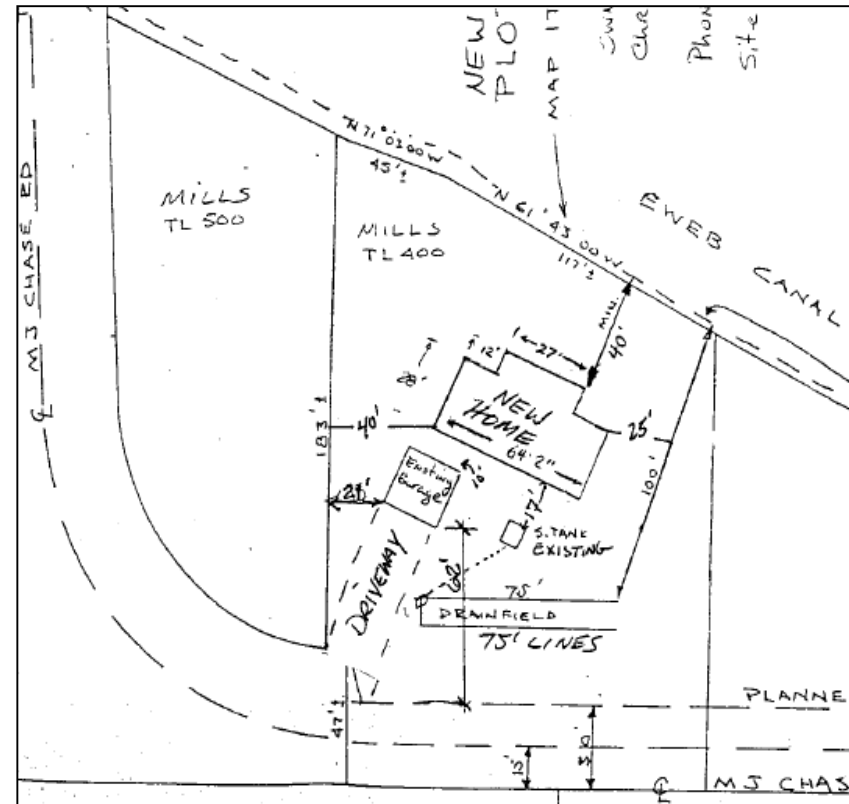
GIS/Cartography: Community Planning Workshop, University of Oregon. 2009.

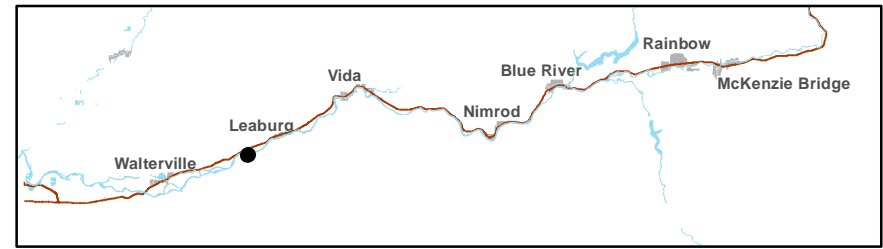
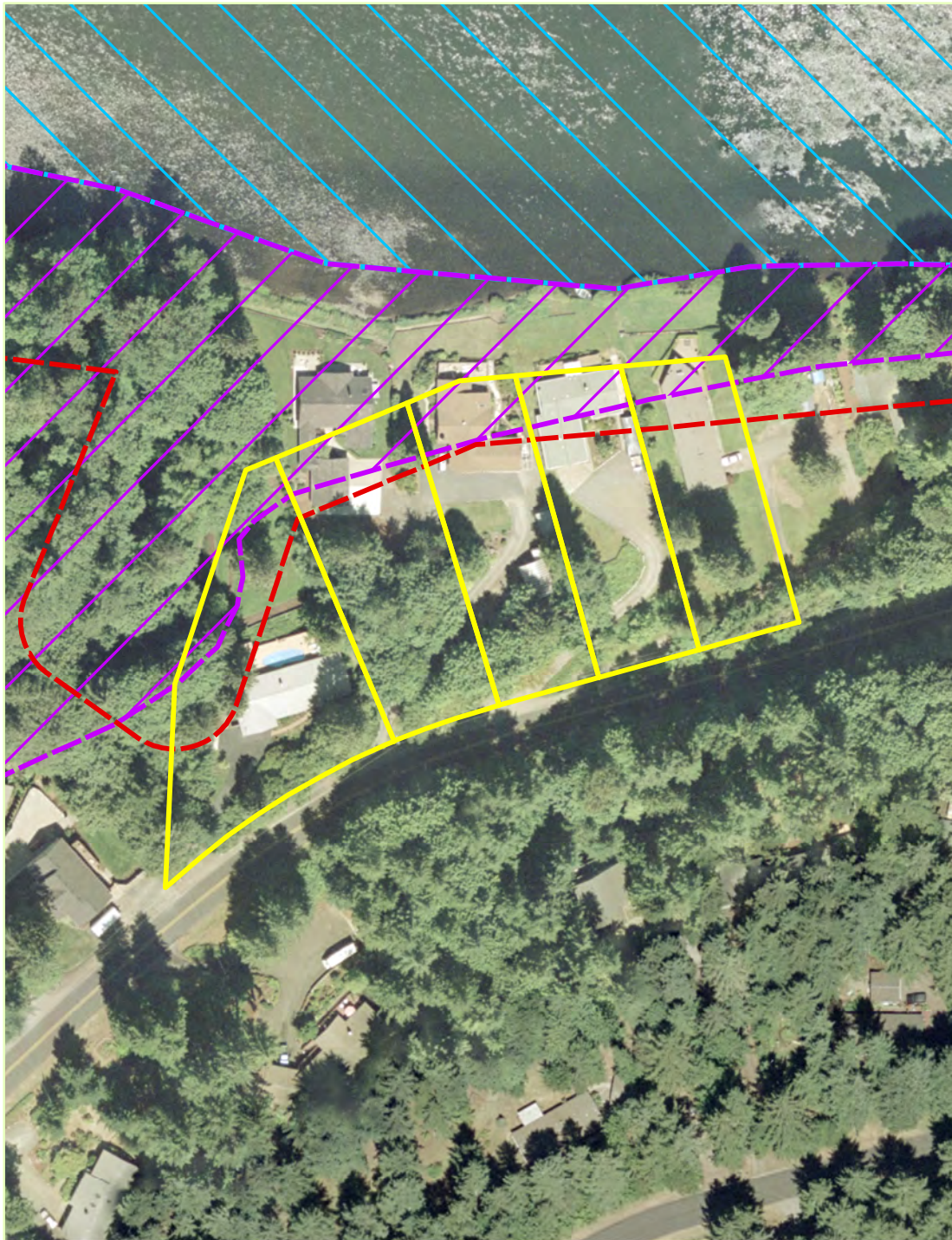
Narrative

The subject parcel is a 1.75 acre site that is designated Agricultural Land in the Rural Comprehensive Plan, and is zoned E-30, Exclusive Farm Use Zone. The property is located within the floodway, adjacent to the EWEB Walterville Canal. The applicant submitted a request to replace a 1979 mobile home with a stick built home. The permit was approved providing that the footprint of the development remained the same. A riparian modification was concurrently granted, allowing the structure to be within 40 feet of the ordinary high water line. Conditions of approval included obtaining a floodplain special use permit, and a fill permit for 156 cubic yards of fill to raise the structure above the base flood elevation. The original building permit, approved in 1989 for the previous owner, allowed riparian encroachment and a flood zone variance on a small lot, but also allowed a septic system installation that had a drainage field shorter and shallower than that required by OAR 340-071-0220.

Implications

Approval was primarily based on the fact that a building permit had been granted previously. It was noted in the staff report that the adjacent properties were of similar size. Implications of the permit decisions include increased risk of flooding, and water contamination due to riparian encroachment and the septic system.





Land Use Decision Analysis

Maplot: 1715174001700-2100 Zoning: RR1
 Focus Area: Lower McKenzie Acreage: 0.40-0.69
 Subfocus Area: Leaburg

-  Study Site
-  Fifty Foot Riparian Setback
-  Floodway
-  100 Year Flood Plain



Parcel Number	Entered Date	Permit Number	Permit Type	Description	Status
1715174001700	7/23/1982	BP821259	EVAPPL History	WOODSTOVE	FINAL
1715174001800	3/8/1994	BP940752	EVAPPL History	FIREPLACE STOVE INSERT	FINAL
	11/29/2006	BP061938	Mechanical/Plumbing Perm	PELLET STOVE	FINAL
1715174001900	7/15/1981	BP811542	EVAPPL History	(blank)	FINAL
	4/20/1987	BP871315	EVAPPL History	SEWAGE DISP REPAIR	FINAL
	2/6/1992	PA930372	EVAPPL History	FLOOD VERIFICATION	COMP
	9/15/1998	BP982563	Bldg Permit--Residential	ACCESSORY	FINAL
1715174002000	10/27/1988	BP883177	EVAPPL History	RES SINGLE FAM DWEL	FINAL
	10/27/1988	PA883176	EVAPPL History	FLOOD VERIFICATION	COMP
	6/13/1989	PA891561	EVAPPL History	(blank)	CANC
	7/1/2004	BP041227	Mechanical/Plumbing Perm	Residential Mech/Plumb	FINAL
	7/1/2004	EL040868	Electrical Permit	Residential Service	FINAL
	7/6/2004	EL040888	Electrical Permit	Branch Circuits	FINAL
1715174002100	2/13/1996	BP960516	EVAPPL History	FIREPLACE STOVE INSERT	FINAL
	4/17/2001	BP010621	Bldg Permit--Residential	ADDITION	FINAL
	6/11/2001	PA015740	Administrative Approval	FP REVIEW FOR BP	COMPLETE
	5/16/2003	BP030808	Bldg Permit--Residential	ALTERATION/REMODEL	FINAL

0 175 350 525 700 Feet

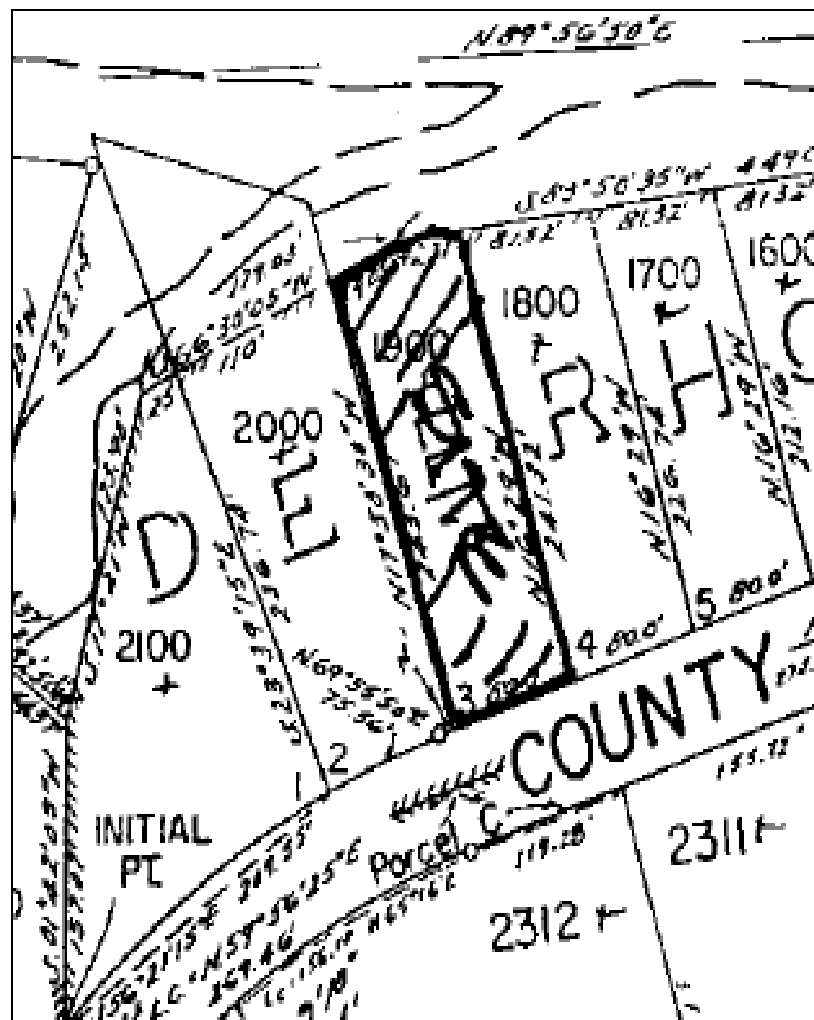
Data Sources: 2005 air photos, tax lots, approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

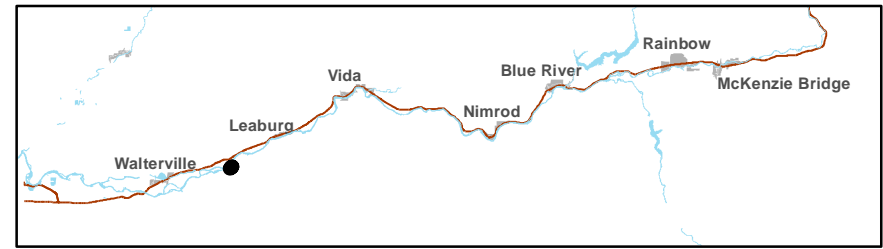
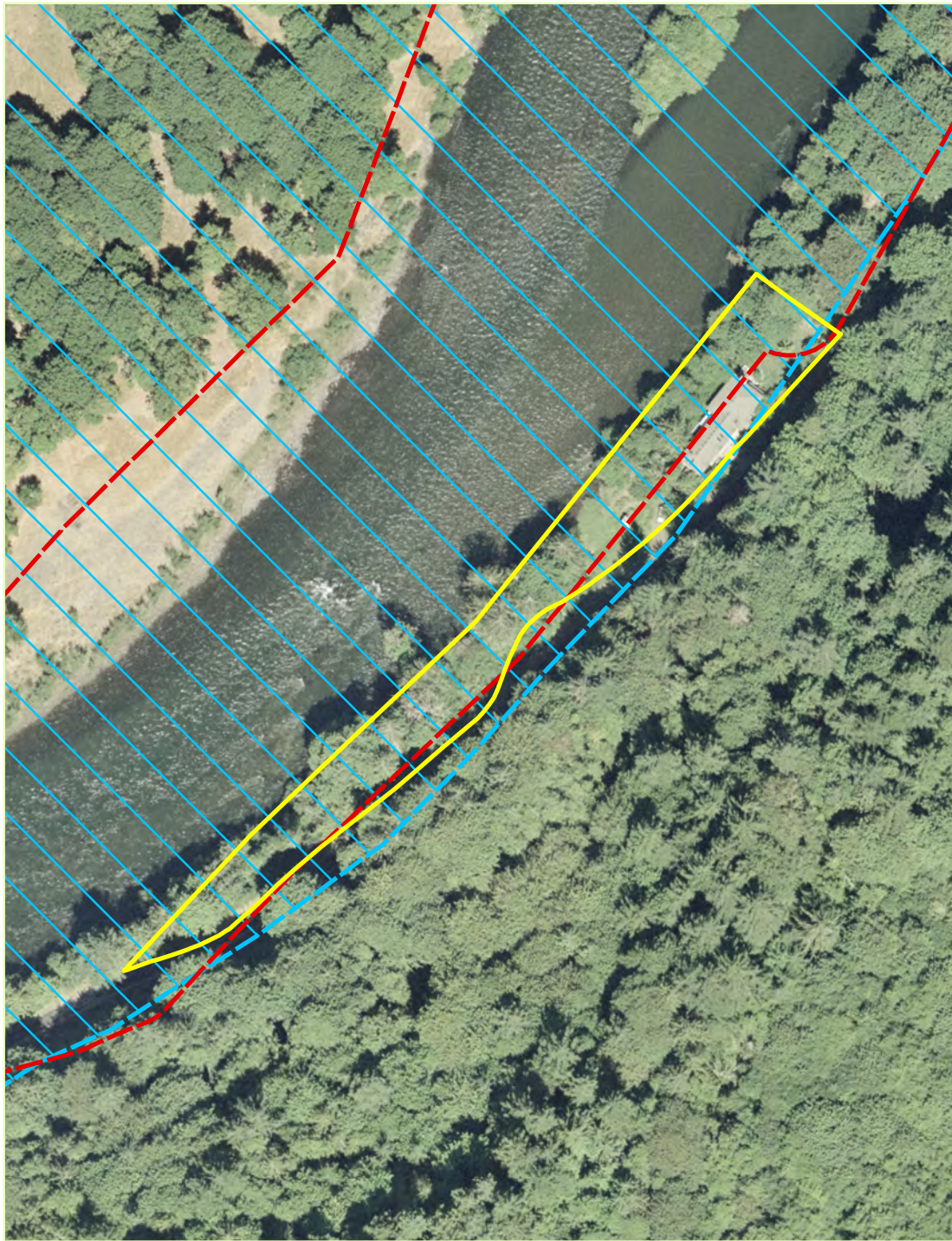
Narrative

The subject site is located in an area of subdivided lots along Deerhorn Road that border the McKenzie River. Each parcel has little to no riparian vegetation remaining in the riparian setback area, which is evident in the aerial photo of the parcels. In 1978, an investigation by Lane County determined that the owner of lot #2000 had filled an overflow channel of the McKenzie River, which resulted in the accumulation of material and an expansion of the lot into the river. The owner then proposed to build on the site located outside of the lot and in the former waterway of the McKenzie River. In 1993, LMD performed a floodplain verification for lot #1900 and found that development occurred outside of the 100-year floodplain. Current floodplain maps show the dwellings on lot #1700 – 2000 occur within the 100-year floodplain.

Implications

While the documentation reviewed for the parcels in question is not complete, no mention was made regarding the extensive riparian vegetation removal that has occurred on the row of lots from #1700 – 2000. The vegetation removal likely occurred before the County adopted the riparian ordinance. This case suggests that non-compliance with the riparian vegetation standards can continue in perpetuity if the removal originally occurred prior to the code adoption. In addition, the discrepancy between the floodplain verification and the current floodplain maps indicates the dynamic nature of the river. Floodplain regulations should encourage alternative structure siting that places buildings outside of flood hazard areas.





Land Use Decision Analysis

Maplot: 1715191000106

Focus Area: Lower McKenzie

Subfocus Area: Leaburg

Zoning: RR2

Acreage: 1.14

-  Study Site
-  Fifty Foot Riparian Setback
-  Floodway
-  100 Year Flood Plain



Entered Date	Permit Number	Permit Type	Description	Status
11/20/1991	SI910330	EVAPPL History	SITE INSPECTION	APPROVED
2/3/1992	PA920321	EVAPPL History	FP DWELLING	COMP
2/3/1992	PA920322	EVAPPL History	(blank)	COMP
7/20/1992	BP922361	EVAPPL History	FOUNDATION-RES	CANC
7/20/1992	BP922362	EVAPPL History	RES SINGLE FAM DWEL	CANC
12/9/1993	PA934454	EVAPPL History	(blank)	COMP
4/13/1994	BP941146	EVAPPL History	RES SINGLE FAM DWEL	FINAL
11/7/1994	BP943738	EVAPPL History	FIREPLACE STOVE INSERT	FINAL
9/18/2001	BP011612	Woodstove/Insert Permit	ZERO CLEARANCE FIREPL	FINAL
4/21/2003	PA035392	Director Approval	RIPARIAN SETBACK MODIFY	APPROVED
8/4/2003	PA035829	Administrative Approval	FP FILL/REMOVAL <500 CU YDS	COMPLETE
10/28/2005	CA050437	Compliance- Enforcement	LAND USE	RVC
5/9/2006	PA065796	Director Approval	RIPARIAN ENHANCE PLAN	APPROVED

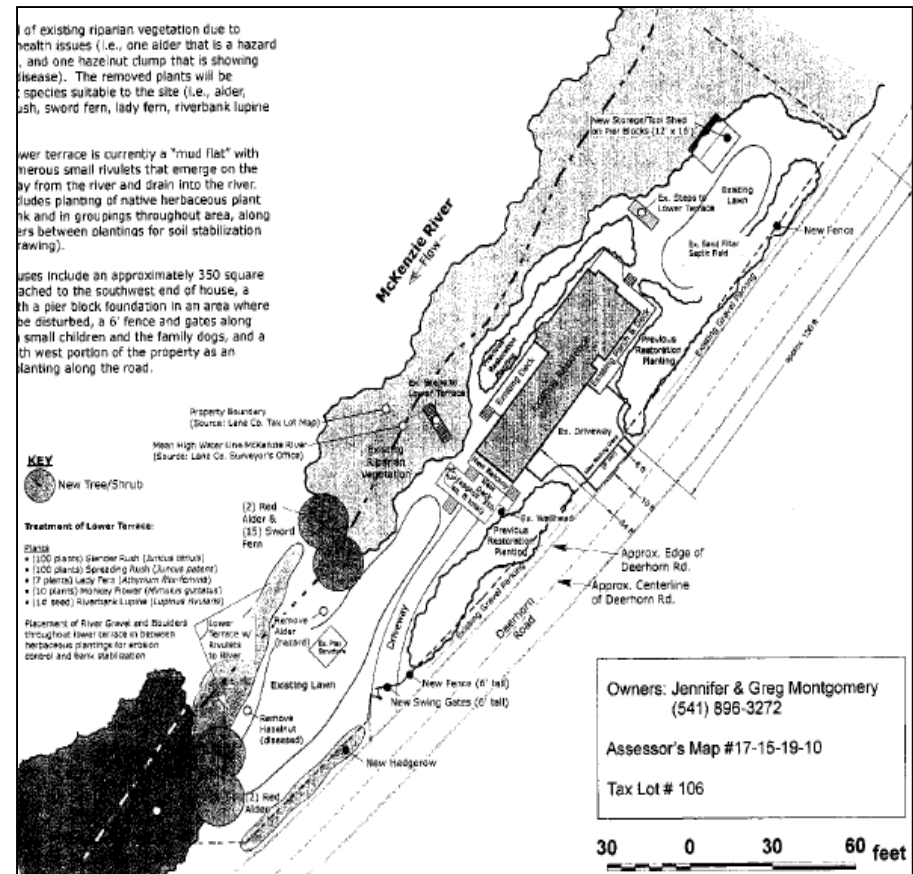
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Data Sources: 2005 air photos, tax lots, approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

GIS/Cartography: Community Planning Workshop, University of Oregon. 2009.

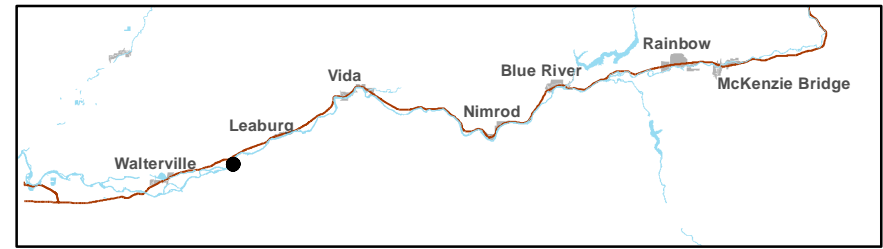
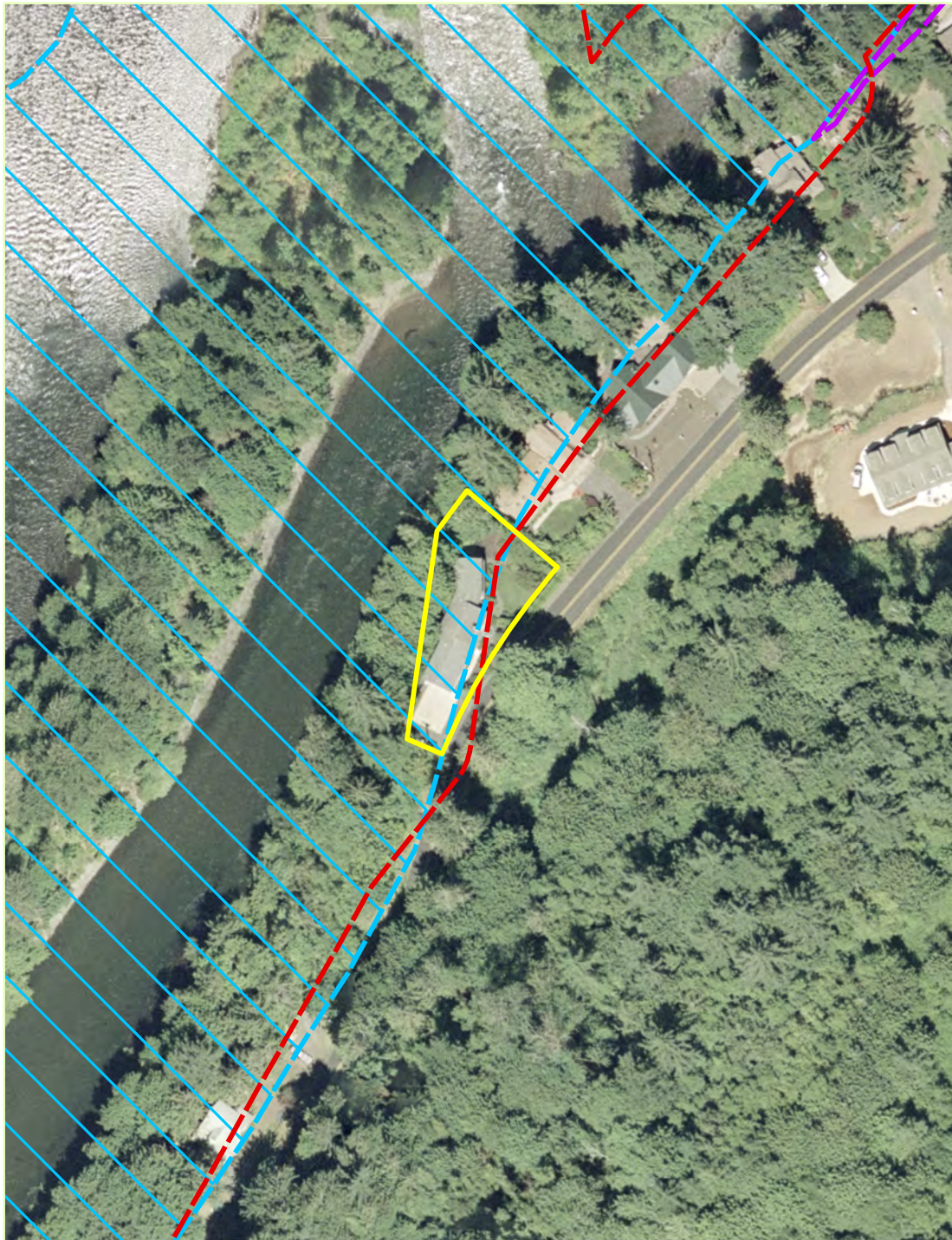
Narrative

In 1992, the applicant requested a special use permit to construct a single-family residence within the 100 year floodplain and riparian setback. The land was previously vacant. DSL did not require a permit for the development and the application was approved with conditions in March 1992 and finalized in April of 1992. In 1993, new owners requested an extension to the implementation timelines of a Class I Stream Riparian Setback Area Restoration Plan to restore indigenous vegetation within the riparian setback area, which was removed or altered by previous owners. The single family dwelling was built in 1994. In 2003, the property owner requested a Riparian Setback Modification and a Floodplain Development Permit to place a revetment for the purpose of erosion control within 50 feet of the ordinary high water mark. The revetment resulted in about 10 cubic yards of fill. ODFW did not comment on the fill application. The staff report claims that placement of the erosion control measures were necessary to maintain the stability of the riverbank and the viability of previous restoration efforts on the property. The staff report states that the revetment is not considered an encroachment on the flood hazard area because it is at the edge of the flood hazard area and because it has been subject to erosion. The application was approved with conditions in August 2003.



Implications

The floodplain development standards allowed this development within the floodplain and the riparian setback. As evidenced by the riparian setback area restoration plan, the original owners violated the initial conditions of approval and altered the riparian area too much. The case is suggestive of potential long-term impacts of allowing the initial floodplain development permit. Lane County Code has extremely limited approval conditions, suggesting that a stronger floodplain development ordinance could prevent or mitigate developments similar to those described in this case.



Land Use Decision Analysis

Maplot: 1715191001300
 Focus Area: Lower McKenzie
 Subfocus Area: Leaburg

Zoning: RR2
 Acreage: 0.26

-  Study Site
-  Fifty Foot Riparian Setback
-  Floodway
-  100 Year Flood Plain



Entered Date	Permit Number	Permit Type	Description	Status
9/30/1985	PA852725	EVAPPL History	(blank)	COMP
10/16/1986	SI860150	EVAPPL History	SITE INSPECTION	APPROVED
11/17/1986	PA863705	EVAPPL History	(blank)	COMP
10/16/1991	PA923160	EVAPPL History	(blank)	COMP
11/7/1991	PA913403	EVAPPL History	(blank)	COMP
8/5/1993	BP932789	EVAPPL History	RES SINGLE FAM DWEL	FINAL
8/11/1994	BP942660	EVAPPL History	WOODSTOVE	EXPIRED

0 175 350 525 700 Feet

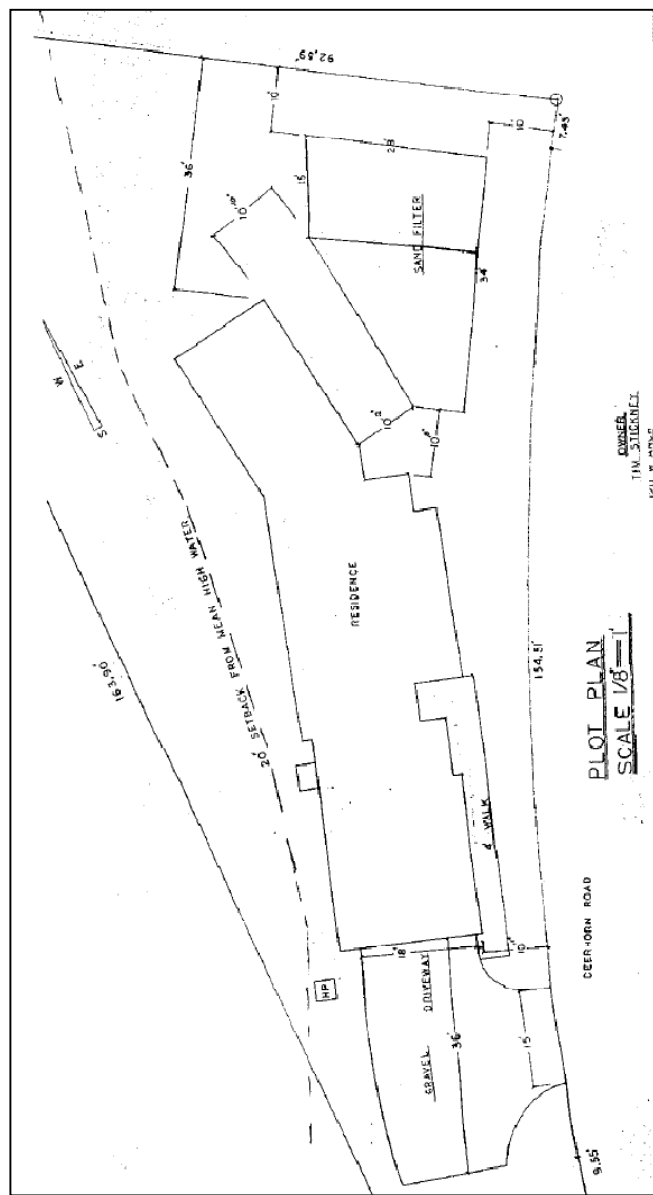
Data Sources: 2005 air photos, tax lots, approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

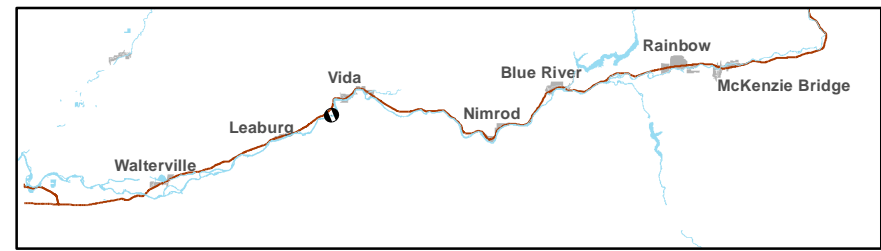
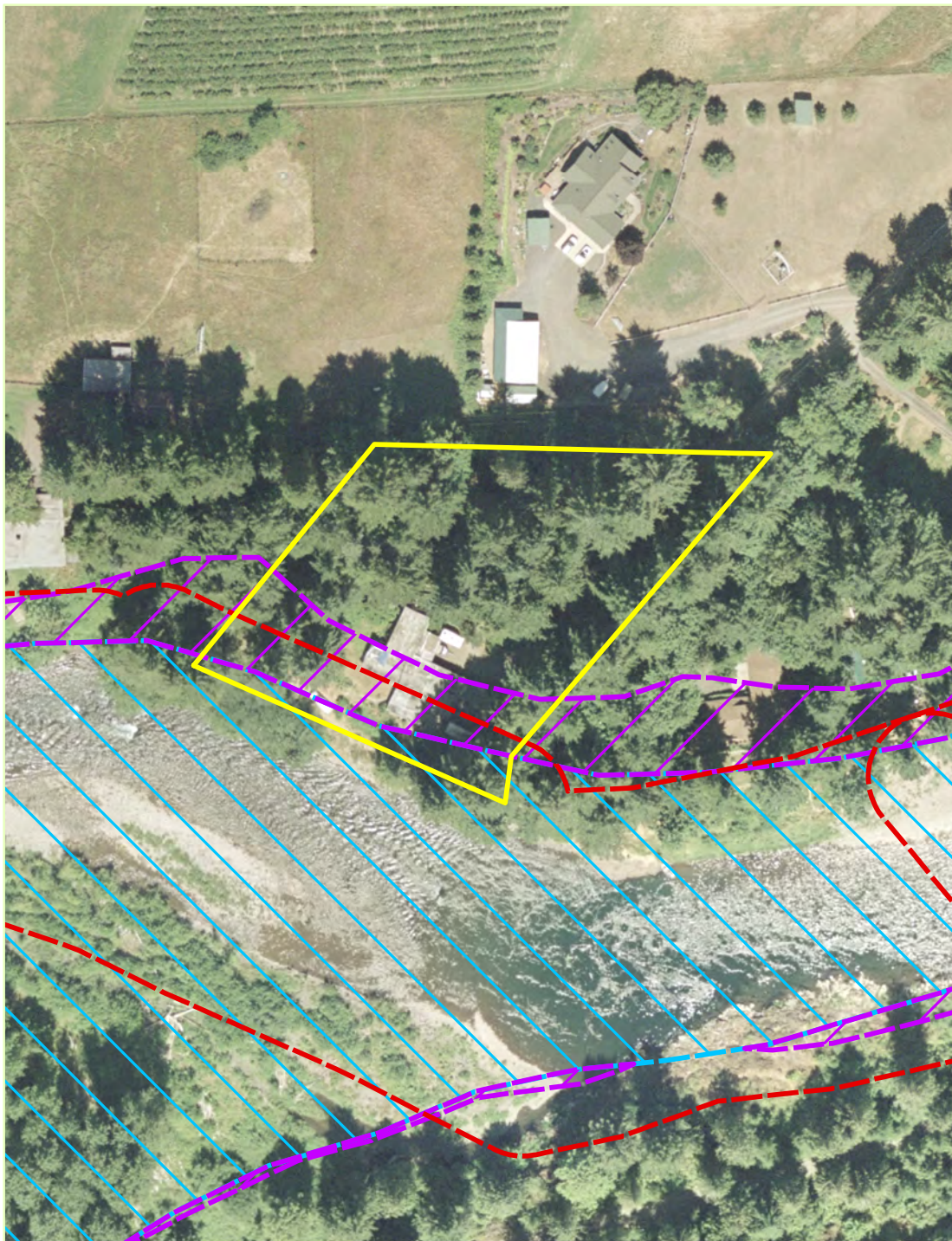
Narrative

The subject site is a 0.60-acre parcel, zoned RR-2, and bordered by Deerhorn Road to the east and the McKenzie River to the west. The site is within the 100-year flood hazard zone. In 1986, the applicant gained approval for a variance for a dwelling and septic system located 20' from the river. ODFW stated a 30' encroachment was “objectionably extreme,” but the permit was approved to avoid imposed hardship. In 1993, applicant submitted request for a variance to allow construction of a dwelling, attached garage, and septic system. The variance would result in a 16' riparian setback and a 10' right-of-way setback. Applicant was required to obtain a floodplain special use permit and produce a vegetation management plan to gain approval. EWEB had no objection to the proposal. ODFW, which opposed property development in 1985 and 1986, wrote that development of the site was not in the public interest of riparian vegetation protection and opposed development in 1992. LMD expressed concern that enforcing the riparian setback would result in a “taking” led to the application’s approval. The variance was granted due to the narrow shape of the lot and the hardship created by setback requirements.

Implications

The variance criteria, found in Chapter 16.256, are designed to reduce the impact of retroactive setback requirements. The lot was created in 1966, well before the 50' riparian setback requirement. The staff report states that the variance is not the result of a self-created hardship, but because of the configuration of the parcel, suggesting that the code is not able to enforce setback requirements on a parcel of an inconvenient shape, size, or topography. Additionally, planning staff recommended placement of the sanitation system outside the 10' road setback and closer to the river, which suggests the right-of-way setback takes precedent over the riparian setback in this instance. Lastly, it was noted that the bank along the west edge of the lot has eroded to make the lot smaller than when it was originally platted. Continued erosion could threaten the new development, which poses a risk to water quality and public safety.





Land Use Decision Analysis

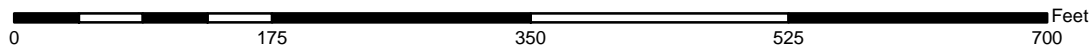
Maplot: 1725060000200
 Focus Area: Middle McKenzie
 Subfocus Area: Vida

Zoning: RR2
 Acreage: 1.58

-  Study Site
-  Fifty Foot Riparian Setback
-  Floodway
-  100 Year Flood Plain



Entered Date	Permit Number	Permit Type	Description	Status
3/12/1990	BP900701	EVAPPL History	(blank)	CANC
3/15/1990	PA900760	EVAPPL History	FLOOD VERIFICATION	COMP
5/18/1999	PA995663	Administrative Approval	LAND USE COMPATIBILITY	COMPLETE
7/23/1999	PA996019	Director Approval	RIPARIAN SETBACK MODIFY	DENIED
8/11/1999	PA996114	Administrative Approval	FP FILL/REMOVAL <500 CU YDS	COMPLETE
9/16/1999	BP991801	Bldg Permit--Residential	ADDITION	EXPIRED



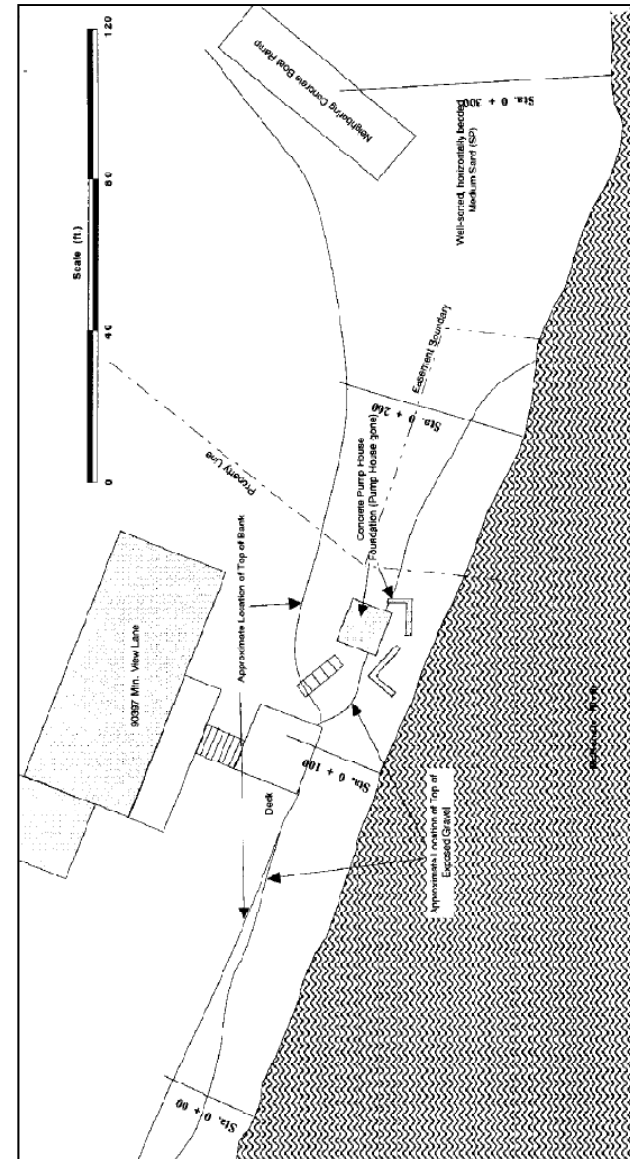
Data Sources: 2005 air photos, tax lots, approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

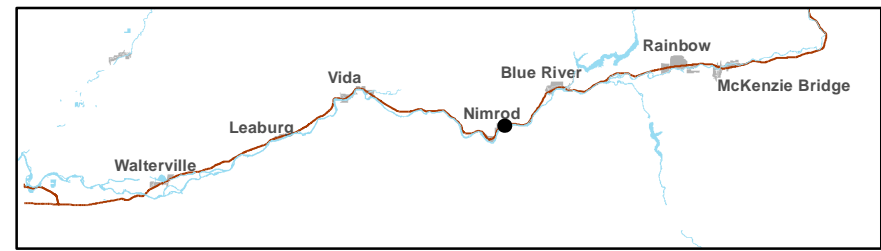
Narrative

The applicant wanted to install erosion control devices along the bank of the property. The proposed method was a “Reno Mattress” and gabion cages, along with rip rap to be placed completely across the 250’ frontage of the lot. This measure was in response to an eroding bank that had already caused damage to a pump house and the deck coming off of the house. Erosion control measures would impact riparian vegetation requiring applicant to obtain a riparian modification permit. Applicant provided inaccurate data regarding extent of riparian vegetation, and then failed to respond to Lane County request for accurate information. Thus, the riparian modification was denied.

Implications

Applicant’s failure to provide accurate description of riparian vegetation in the setback area led to the denial of the permit. However, had the applicant addressed the County’s concerns, which the County made clear in correspondence and messages left for the applicant in an effort to illuminate the conditions by which the erosion control could be permitted, the riparian modification would have been granted. There is some mention of DSL comments on the case, but as the applicant abandoned the effort to gain permission, DSL never had to comment.





Land Use Decision Analysis

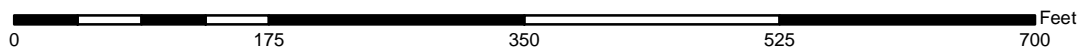
Maplot: 1735021001501
 Focus Area: Middle McKenzie
 Subfocus Area: Nimrod

Zoning: RR5
 Acreage: 0.20

-  Study Site
-  Fifty Foot Riparian Setback
-  Floodway
-  100 Year Flood Plain



Entered Date	Permit Number	Permit Type	Description	Status
2/26/2004	PA045172	Director Approval	RIPARIAN SETBACK MODIFY	APPROVED
6/26/2006	BP061008	Bldg Permit--Residential	SINGLE FAM	FINAL
6/26/2006	SP067251	Sanitation--Permit	INSTALLATION	FINAL
7/6/2006	PA066202	Administrative Approval	FP DWELLING	COMPLETE
7/2/2007	EL071024	Electrical Permit	Temporary Services	EXPIRED
8/30/2007	EL071379	Electrical Permit	Residential Service	FINAL
9/3/2008	BP081228	Mechanical/Plumbing Perm	Residential Mech/Plumb	FINAL



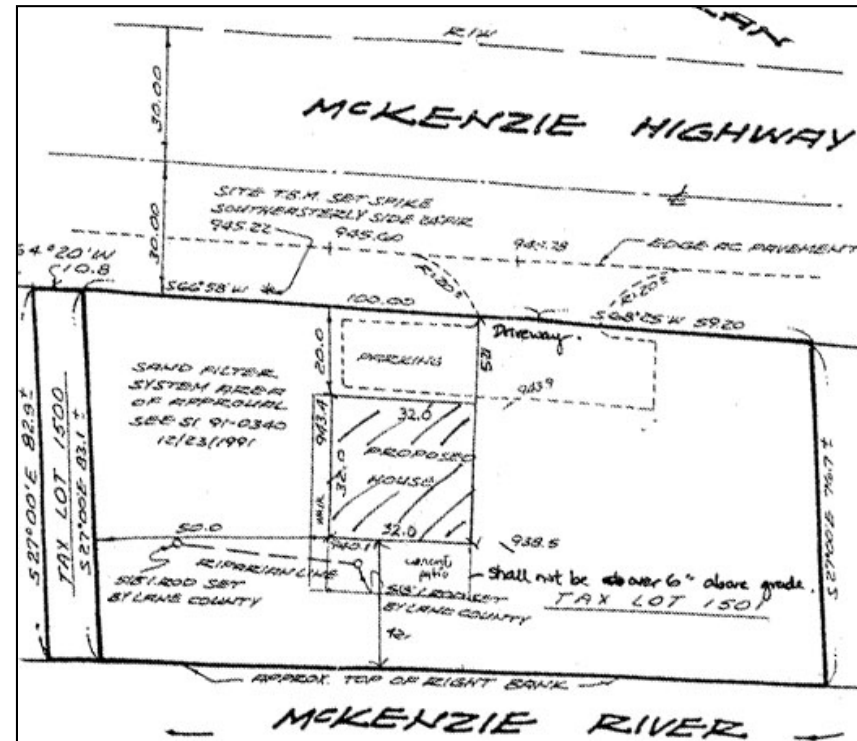
Data Sources: 2005 air photos, tax lots, approximate river channel - LCOG
 Floodway and Floodplain - FEMA DFIRM

Narrative

The applicant requested riparian modification approval on land zoned RR-2. The application was for a two story single family dwelling and septic system on the 0.31-acre property. The parcel is 81.5' deep with the right of way setback at 70' and the riparian setback at 50'. The applicant contended that previous development occurred on the lot and thus has a legal right to construct new development on the same site as the previous structure; however a neighbor questioned whether there was ever previous development. ODFW did not comment on the pending application. In addition, a neighbor commented that the proposed well was located close to a septic system on his own property. There is no evidence that the county addressed this comment. The county approved the construction of a single family dwelling 25 feet from the high water of the McKenzie River and within the 50' riparian setback requirement. The application was approved in July 2005.

Implications

Lane County approval of the development within the floodplain allowed substantial modification of the riparian zone. In particular, the case reveals that the riparian setback is not privileged over the right-of-way setback. Additionally, the case demonstrates that septic placement is only considered on the lot level and not in relation to adjoining lots, creating potential vulnerabilities.



Appendix B

Permit Type Codes

Table B-1 provides a comprehensive list of the permit codes found in the Lane county permit database.

Table B-1. Permit type codes, Lane County Permit Database

COMP_TYPE	SUB_TYPE	DESCRIPTION
BLD_B	CIFN	FOUNDATION-COM
BLD_B	CIRF	REROOF-COM
BLD_B	RAFN	FOUNDATION-RES
BLD_B	RARF	REROOF-RES
BLD_B	SIGN	SIGN
BLD_BCOM	CI	NEW COM/IND
BLD_BCOM	CIAD	ADDITION
BLD_BCOM	CIAL	ALTERATION/REMODEL
BLD_BCOM	CIFA	FIRE ALARM SYSTEM
BLD_BCOM	CIFS	FIRE SPRINKLER
BLD_BCOM	MODACC	NEW MODULAR ACCESSORY
BLD_BCOM	MODCI	NEW MODULAR COM/IND
BLD_BRES	AG	AGRICULTURAL PLACEMENT
BLD_BRES	GUEST	RESIDENTIAL GUEST HOUSE
BLD_BRES	MODACC	NEW MODULAR ACCESSORY
BLD_BRES	MODSFD	NEW MODULAR SFD
BLD_BRES	RACC	ACCESSORY
BLD_BRES	RADD	ADDITION
BLD_BRES	RAL	ALTERATION/REMODEL
BLD_BRES	RSFD	SINGLE FAM
BLD_BRES	TANK	RESIDENTIAL FUEL TANK
BLD_DEMO	DEMO-COM	Commercial Demolition
BLD_DEMO	DEMO-RES	Residential Demolition
BLD_ELEC	BRCH	Branch Circuits
BLD_ELEC	MISC	Miscellaneous Electrical
BLD_ELEC	RSERV	Residential Service
BLD_ELEC	SRVF	Service and Feeders
BLD_ELEC	TEMP	Temporary Services
BLD_MECH	CIM	COM/INDUSTRIAL
BLD_MECH	RM	RESIDENTIAL
BLD_MEPL	COM	Commercial Mech/Plumb
BLD_MEPL	FPSI	FIREPLACE STOVE INSERT

COMP_TYPE	SUB_TYPE	DESCRIPTION
BLD_MEPL	PTST	PELLET STOVE
BLD_MEPL	RES	Residential Mech/Plumb
BLD_MEPL	WS	WOOD STOVE
BLD_MEPL	ZERO	ZERO CLEARANCE FIREPL
BLD_MH	MH	Manufactured Dwelling
BLD_MH	MHMP	Manuf. Dwell. in a Park
BLD_MH	SMH	Stored Manuf. Dwelling
BLD_MH	TMH	Temporary Manuf. Dwelling
BLD_MOVE	COM	Move Commercial Structure
BLD_MOVE	RES	Move Residential Structure
BLD_OCC	CO_COM	Commercial Change of Occ.
BLD_OCC	CO_RES	Residential Change of Occ.
BLD_PARK	MH_A	MH PARK-TYPE A
BLD_PARK	MH_B	MH PARK-TYPE B
BLD_PARK	MH_C	MH PARK-TYPE C
BLD_PARK	RV_A	RV PARK-TYPE A
BLD_PARK	RV_B	RV PARK-TYPE B
BLD_PARK	RV_C	RV PARK-TYPE C
BLD_PLUM	CIPL	COM/IND
BLD_PLUM	MHPL	MANUF DWELLING
BLD_PLUM	RPL	RES
BLD_POOL	POOL-COM	Commercial Pool
BLD_POOL	POOL-RES	Residential Pool
BLD_RV	PARK	Park Model RV
BLD_RV	RV	Emergency RV Placement
BLD_SOLR	SOLR-COM	COMMERCIAL SOLAR
BLD_SOLR	SOLR-RES	RESIDENTIAL SOLAR
BLD_WS	FPSI	FIREPLACE STOVE INSERT
BLD_WS	PTST	PELLET STOVE
BLD_WS	WS	WOODSTOVE
BLD_WS	ZERO	ZERO CLEARANCE FIREPL.
COMP	BUILDING	BUILDING
COMP	COMBO	COMBINATION
COMP	EXPIRED	EXPIRED
COMP	LAND USE	LAND USE
COMP	NOISE	NOISE ORD. COMPLAINT
COMP	NUISANCE	NUISANCE
COMP	RV	RECREATIONAL VEHICLE
COMP	SUBSURFC	SUBSURFACE/SANITATION
DEFAULT	COM	COMMERCIAL
DEFAULT	RES	RESIDENTIAL

COMP_TYPE	SUB_TYPE	DESCRIPTION
DEPOSITS	ELEC	STATE ELECTRICAL PERMITS
DEPOSITS	OTHER	PLNG, BLD, SAN, RUL, COMP
DEPOSITS	SURVEY	SURVEYORS
ENF	BUILDING	BUILDING
ENF	COMBO	COMBINATION
ENF	EXPIRED	EXPIRED PERMIT
ENF	LAND USE	LAND USE
ENF	METH LAB	METH LAB
ENF	NUISANCE	NUISANCE
ENF	RV	RECREATIONAL VEHICLE
ENF	SUBSURFC	SUBSURFACE/SANITATION
FACILITY	DRIVEWAY	DRIVEWAY APPROACH
FACILITY	MISC	MISCELLANEOUS
FACILITY	UTILITY	UTILITY
FP_DW	DW	Access Driveway
HISTORY	AG	AGRICULTURAL STRUCTURE
HISTORY	AGNF	NON-FARM AG BUILDING
HISTORY	CI	NEW COM/IND
HISTORY	CIAD	ADDITION COM/IND
HISTORY	CIAL	ALTERATION COM/IND
HISTORY	CIFN	FOUNDATION-COM
HISTORY	CIFS	FIRE SPRINKLER COM/IND
HISTORY	CIM	MECH COM/INDUST
HISTORY	CIPL	PLUMBING COM/IND
HISTORY	CIPR	COMM PLAN REVIEW
HISTORY	CIRF	REROOF-COM
HISTORY	CO	C OF O INVESTIGATION
HISTORY	DEMO	DEMOLITION
HISTORY	FPSI	FIREPLACE STOVE INSERT
HISTORY	HOF S	HO SPECIAL USE
HISTORY	HOFSE	PLAN AMENDMENT
HISTORY	HOFSM	PLAN AMENDMENT
HISTORY	HOF SN	PLAN AMENDMENT
HISTORY	HOF SR	RIPARIAN MODIFICATION
HISTORY	HOF T	TEMPORARY PERMIT
HISTORY	HOF Z	ZONE CHANGE
HISTORY	MH	MANUF DWEL
HISTORY	MH_A	MH PARK-TYPE A
HISTORY	MH_B	MH PARK-TYPE B
HISTORY	MH_C	MH PARK-TYPE C
HISTORY	MHMP	MANUF DWEL IN A PARK

COMP_TYPE	SUB_TYPE	DESCRIPTION
HISTORY	MHPL	MANUF DWEL PLUMBING
HISTORY	MODACC	MOD ACCESS COM/IND
HISTORY	MODCI	MOD COM/IND
HISTORY	MODSFD	RES MOD SINGLE FAM DW
HISTORY	MOVE	MOVING INVESTIGATION
HISTORY	PADFF	FUEL BREAK VERIF.
HISTORY	PADFV	VERIF. CONDITIONS
HISTORY	PADH	HAZARDS CHECKLIST
HISTORY	PADI	SITE INV. REPORT
HISTORY	PADL	LEGAL LOT VERIFICATION
HISTORY	PADM	TMH RENEWAL
HISTORY	PADO	HOME OCCUPATION
HISTORY	PADOR	HOME OCC RENEWAL
HISTORY	PADR	SITE REVIEW
HISTORY	PADS	PRELIM INVESTIGATION
HISTORY	PADU	SPECIAL USE PERMIT
HISTORY	PADUC	RIPARIAN RESTORATION
HISTORY	PADUD	RIPARIAN DEVELOPMENT
HISTORY	PADUE	RIPARIAN ENHANCEMENT
HISTORY	PADUI	RIPARIAN INVESTIGATION
HISTORY	PADUN	NONCONFORMING USE
HISTORY	PADUS	RIPARIAN DECLARATION
HISTORY	PADUV	VESTED RIGHT
HISTORY	PADVL	LOT SIZE VARIANCE
HISTORY	PADVR	ROAD SETBACK VARIANCE
HISTORY	PADVS	SETBACK VARIANCE
HISTORY	PADW	WETLANDS VERIFICATION
HISTORY	PADZ	LAND USE COMPATIBILITY
HISTORY	PAFA	FP ACCESSORY BLDG
HISTORY	PAFB	FP BRIDGE
HISTORY	PAFD	FP DWELLING
HISTORY	PAFF	FLOODPLAIN FILL
HISTORY	PAFM	FP MANUF. HOME
HISTORY	PAFP	FLOOD VERIFICATION
HISTORY	PAFV	WET FLOODPROOFING
HISTORY	PALP	PRELIMINARY PARTITION
HISTORY	PALPF	FINAL PARTITION
HISTORY	PALPL	LOT LINE ADJUSTMENT
HISTORY	PALS	PRELIM SUBDIVISION
HISTORY	PALSF	FINAL SUBDIVISION
HISTORY	PARK	PARK MODEL RV

COMP_TYPE	SUB_TYPE	DESCRIPTION
HISTORY	POOL	POOL/SPA
HISTORY	RACC	RES ACCESSORY
HISTORY	RADD	RES ADDITION
HISTORY	RAFL	RES FOUND ALTERATION
HISTORY	RAFN	FOUNDATION-RES
HISTORY	RAFS	RES FIRE SPRINKLER
HISTORY	RAL	RES ALTERATION
HISTORY	RALX	RESIDENTIAL ALTERATION RENEWAL
HISTORY	RARF	REROOF-RES
HISTORY	RM	MECH RESIDENTIAL
HISTORY	RPL	PLUMBING RES
HISTORY	RPR	RES PLAN REVIEW
HISTORY	RSFD	RES SINGLE FAM DWEL
HISTORY	RSFX	RES DWELLING RENEWAL
HISTORY	RV	Self-contained RV
HISTORY	RV_A	RV PARK-TYPE A
HISTORY	RV_B	RV PARK-TYPE B
HISTORY	RV_C	RV PARK-TYPE C
HISTORY	SDAN	AUTHORIZATION
HISTORY	SDAR	ALTERATION
HISTORY	SDCF	CAPPING FILL
HISTORY	SDPD	PRESSURE DISTRIBUTION
HISTORY	SDSF	SAND FILTER
HISTORY	SDSR	SEWAGE DISP REPAIR
HISTORY	SDSS	STANDARD SYSTEM
HISTORY	SDSV	SEPTIC VERIFICATION
HISTORY	SDSX	SEPTIC SYSTEM RENEWAL
HISTORY	SI	SITE INSPECTION
HISTORY	SIGN	SIGN
HISTORY	SINV	SPECIAL INVESTIGATION
HISTORY	SMH	STORED MH
HISTORY	SOLR-COM	COMMERCIAL SOLAR
HISTORY	SOLR-RES	RESIDENTIAL SOLAR
HISTORY	SREF	SANITATION REFERRAL
HISTORY	TMH	TEMP MH
HISTORY	TMHR	TEMP MH RENEWAL
HISTORY	WA	WELL VERIFICATION
HISTORY	WELL	WELL INSTALLATION
HISTORY	WS	WOODSTOVE
PLN_AA	AAV	ACCESS VERIFICATION
PLN_AA	AEX	EXTENSION OF APPROVAL

COMP_TYPE	SUB_TYPE	DESCRIPTION
PLN_AA	AFBV	FUEL BREAK VERIFICATION
PLN_AA	AFBVF	FUEL BREAK VERIFICATION
PLN_AA	AFLP	FINAL PARTITION
PLN_AA	AFLPM49	M49 FINAL PARTITION
PLN_AA	AFPACC	FP ACCESSORY STRUCTURE
PLN_AA	AFPB	FP BRIDGE
PLN_AA	AFBPBV	FP REVIEW FOR BP
PLN_AA	AFPCOMB	FP COMBINATION
PLN_AA	AFPDW	FP DWELLING
PLN_AA	AFPFIL1F	FP FILL/REMOVAL <500 CU YDS
PLN_AA	AFPFIL2F	FP FILL/REMOVAL <3000 CU YDS
PLN_AA	AFPFIL3F	FP FILL/REMOVAL <30000 CU YDS
PLN_AA	AFPFIL4F	FP FILL/REMOVAL >30000 CU YDS
PLN_AA	AFPFILL1	FP FILL/REMOVAL <500 CU YDS
PLN_AA	AFPFILL2	FP FILL/REMOVAL <3000 CU YDS
PLN_AA	AFPFILL3	FP FILL/REMOVAL <30000 CU YDS
PLN_AA	AFPFILL4	FP FILL/REMOVAL >30000 CU YDS
PLN_AA	AFPFV	FP FIELD VERIFICATION
PLN_AA	AFPFVF	FP FIELD VERIFICATION
PLN_AA	AFPMH	FP MANUFACTURED HOME
PLN_AA	AFPMHP	FP MH PARK
PLN_AA	AFPV	FP VERIFICATION
PLN_AA	AFPVF	FP VERIFICATION
PLN_AA	AG	AGRICULTURAL PLACEMENT
PLN_AA	AGS	ADDITIONAL AG PLACEMENTS
PLN_AA	AHCL	HAZARDS CHECKLIST
PLN_AA	AHCLF	HAZARDS CHECKLIST
PLN_AA	AHOCCR	HOME OCCUPATION RENEWAL
PLN_AA	AHOCCRF	HOME OCCUPATION RENEWAL
PLN_AA	ALLA	LOT LINE ADJUSTMENT
PLN_AA	ALLA5	LOT LINE ADJUSTMENT-5 DEEDS
PLN_AA	ALLV	LEGAL LOT VERIFICATION
PLN_AA	ALLV10	LEGAL LOT VERIFICATION-10 DEED
PLN_AA	ALLV10B	ADDITIONAL LEGAL LOT-10 DEEDS
PLN_AA	ALLV11	LEGAL LOT VERIFICATION-11 DEED
PLN_AA	ALLV11B	ADDITIONAL LEGAL LOT-11 DEEDS
PLN_AA	ALLV2	ADDITIONAL LEGAL LOTS
PLN_AA	ALLV5	LEGAL LOT VERIFICATION-5 DEEDS
PLN_AA	ALLV5B	ADDITIONAL LEGAL LOT-5 DEEDS
PLN_AA	ALUC	LAND USE COMPATIBILITY
PLN_AA	ALUC2	COMPLEX LAND USE COMPATIBILITY

COMP_TYPE	SUB_TYPE	DESCRIPTION
PLN_AA	ALUCM37	M37 LAND USE COMPATIBILITY
PLN_AA	ALUCM49	M49 LAND USE COMPATIBILITY
PLN_AA	API	PRELIM INVESTIGATION
PLN_AA	APIF	PRELIM INVESTIGATION
PLN_AA	APREAPP	PRE-APPLICATION CONFERENCE
PLN_AA	APREM37	M37 PRE-APPLICATION CONFERENCE
PLN_AA	APREM49	M49 PRE-APPLICATION CONFERENCE
PLN_AA	ARESERCH	RESEARCH REQUEST
PLN_AA	ARSD	RIPARIAN DECLARATION
PLN_AA	ARSDF	RIPARIAN DECLARATION
PLN_AA	ARSPI	RIPARIAN PRELIM INVEST
PLN_AA	ARSPIF	RIPARIAN PRELIM INVEST
PLN_AA	ASIR	SITE INVEST REPORT
PLN_AA	ASIRF	SITE INVEST REPORT
PLN_AA	ASIRUGB	UGB SITE INVESTIGATION REPORT
PLN_AA	ASUB	FINAL SUBDIVISION
PLN_AA	ASUBM49	M49 FINAL SUBDIVISION
PLN_AA	ATMHR	TEMPORARY MH RENEWAL
PLN_AA	ATMHR_SA	TEMPORARY MH RENEWAL W/ SAN
PLN_AA	AVC	CONDITIONS VERIFICATION
PLN_AA	AVCF	FIELD VERIFY CONDITIONS
PLN_AA	AVCF2	FIELD VERIFY CONDITIONS
PLN_AA	AVCFF	FIELD VERIFY CONDITIONS
PLN_AA	AVCO	CONDITIONS VERIFICATION OFFICE
PLN_AA	AVLEU	VERIFY LAWFUL USE
PLN_AA	AVRR	VERIFY REPLACEMENT RIGHT
PLN_AA	AWV	WETLANDS VERIFICATION
PLN_AA	AWV2	WETLANDS NOTICE TO DSL
PLN_AA	M37QUERY	Measure 37 Inquiry
PLN_APBC	BCAPPEAL	APPEAL TO BCC
PLN_APBC	BCIGA	INTERGOVERNMENTAL AGREEMENT
PLN_APBC	BCINTERP	BOARD INTERPRETATION
PLN_APBC	BCRECORD	APPEAL ON THE RECORD
PLN_APBC	BCREMAND	REMAND FROM LUBA
PLN_APHO	HOAPPEAL	APPEAL TO HRG OFFICIAL
PLN_APHO	HORECORD	APPEAL ON THE RECORD
PLN_APHO	HOREMAND	REMAND FROM BCC
PLN_DA	DAAV	ACCESS VARIANCE
PLN_DA	DACOLLO	TELECOMM TOWER COLLOCATION
PLN_DA	DAEDWM37	M37 EFU DWELLING
PLN_DA	DAEDWM49	M49 EFU DWELLING

COMP_TYPE	SUB_TYPE	DESCRIPTION
PLN_DA	DAEFUDW	EFU DWELLING
PLN_DA	DAEX	EXTENSION OF APPROVAL
PLN_DA	DAF2DW	F2 DWELLING
PLN_DA	DAFDWM37	M37 F2 DWELLING
PLN_DA	DAFDWM49	M49 F2 DWELLING
PLN_DA	DAFPWV	FP WET FLOODPROOFING
PLN_DA	DAFW	FLOODWAY PERMIT
PLN_DA	DAFWF	FLOODWAY PERMIT
PLN_DA	DAGDP	GREENWAY PERMIT
PLN_DA	DAGDPF	GREENWAY PERMIT
PLN_DA	DAHOC	HOME OCCUPATION
PLN_DA	DAHOCF	HOME OCCUPATION
PLN_DA	DALLA	LOT LINE ADJUSTMENT NOTICE
PLN_DA	DALLV	LEGAL LOT VERIFICATION NOTICE
PLN_DA	DALP	PRELIMINARY PARTITION
PLN_DA	DALPM37	M37 PRELIMINARY PARTITION
PLN_DA	DALPM49	M49 PRELIMINARY PARTITION
PLN_DA	DALSV	LOT SIZE VARIANCE
PLN_DA	DALSVF	LOT SIZE VARIANCE
PLN_DA	DAMOD	MODIFY APPROVAL
PLN_DA	DANCU	NONCONFORMING USE VERIFY
PLN_DA	DANCUF	NONCONFORMING USE VERIFY
PLN_DA	DARDP	RIPARIAN DEV. PLAN
PLN_DA	DARDPF	RIPARIAN DEV. PLAN
PLN_DA	DAREISS	REISSUE PD DECISION
PLN_DA	DAREMAND	REMAND FROM HRG OFFICIAL
PLN_DA	DAREP	RIPARIAN ENHANCE PLAN
PLN_DA	DAREPF	RIPARIAN ENHANCE PLAN
PLN_DA	DARRP	RIPARIAN RESTORE PLAN
PLN_DA	DARRPF	RIPARIAN RESTORE PLAN
PLN_DA	DARSM	RIPARIAN SETBACK MODIFY
PLN_DA	DARSMF	RIPARIAN SETBACK MODIFY
PLN_DA	DARSV	ROAD SETBACK VARIANCE
PLN_DA	DASR	SITE REVIEW
PLN_DA	DASRF	SITE REVIEW
PLN_DA	DASUB	PRELIMINARY SUBDIVISION
PLN_DA	DASUBM37	M37 PRELIMINARY SUBDIVISION
PLN_DA	DASUBM49	M49 PRELIMINARY SUBDIVISION
PLN_DA	DASUP	SPECIAL USE PERMIT
PLN_DA	DASUPF	SPECIAL USE PERMIT
PLN_DA	DASUPH	SUP W/ PUBLIC HEARING

COMP_TYPE	SUB_TYPE	DESCRIPTION
PLN_DA	DASUPM37	M37 SPECIAL USE PERMIT
PLN_DA	DASV	SETBACK VARIANCE
PLN_DA	DASVF	SETBACK VARIANCE
PLN_DA	DATMH	TEMPORARY MH
PLN_DA	DATMHF	TEMPORARY MH
PLN_DA	DATOWER	TOWER
PLN_DA	DATOWERF	TOWER
PLN_DA	DAVERF	VESTED RIGHTS
PLN_DA	DAVLEU	VERIFY LAWFUL USE
PLN_DA	DAVR	VESTED RIGHTS
PLN_DA	DAVRF	VESTED RIGHTS
PLN_DA	DAVRR	VERIFY REPLACEMENT RIGHT
PLN_DA	DAVRRF	VERIFY REPLACEMENT RIGHT
PLN_HO	HOCUP	UGB HO CONDITIONAL USE
PLN_HO	HOEX	EXTENSION
PLN_HO	HOMOD	MODIFY APPROVAL
PLN_HO	HOSG	SAND & GRAVEL REVIEW
PLN_HO	HOSUP	HO SPECIAL USE PERMIT
PLN_HO	HOTEMP	TEMPORARY PERMIT
PLN_HO	HOTOWER	TOWER
PLN_HO	HOZC	ZONE CHANGE
PLN_HO	HOZCUGB	UGB ZONE CHANGE
PLN_M37	CLAIM	Measure 37 Claim
PLN_PA	PACDA	Conformity Determination Amend
PLN_PA	PACCLASS	METRO PLAN CLASSIFICATION
PLN_PA	PAEXC	PLAN AMEND W/EXCEPTION
PLN_PA	PAMAJOR	MAJOR PLAN AMENDMENT
PLN_PA	PAMETR1A	TYPE 1 METRO PLAN AMEND W/ZONE
PLN_PA	PAMETR2A	TYPE II METRO PLAN AMEND W/ZON
PLN_PA	PAMETRO1	TYPE 1 METRO PLAN AMENDMENT
PLN_PA	PAMETRO2	TYPE 2 METRO PLAN AMENDMENT
PLN_PA	PANOEXC	PLAN AMEND W/O EXCEPTION
PLN_PA	PARD	ROAD DEDICATION
PLN_PA	PAUGB	SMALL CITY PLAN AMEND
PLN_PA	PAUGBEX	SMALL CITY PLAN AMEND W/EXC
PLN_PA	PAZC	PLN AMEND ZONE CH
PLN_PA	PAZCEX	PLAN AM ZONE CH W/EX
PRE_APPL	AG	AGRICULTURAL STRUCTURE
PRE_APPL	MODACC	NEW MODULAR ACCESSORY
PRE_APPL	MODSFD	NEW MODULAR SFD
PRE_APPL	RACC	ACCESSORY

COMP_TYPE	SUB_TYPE	DESCRIPTION
PRE_APPL	RADD	ADDITION
PRE_APPL	RAL	ALTERATION/REMODEL
PRE_APPL	RSFD	SINGLE FAM
PRE_APPL	TANK	RESIDENTIAL FUEL TANK
ROW	DRIVEWAY	DRIVEWAY APPROACH
ROW	MISC	MISCELLANEOUS
ROW	UTILITY	UTILITY
SAN_ARPT	HTNK	HOLDING TANK RENEWAL
SAN_ARPT	OAS	ALTERNATIVE SYSTEMS RENEWAL
SAN_INSP	COM	COMMERCIAL
SAN_INSP	RES	RESIDENTIAL
SAN_PERM	ALT_INSP	ALT SYSTEM INSPECTION
SAN_PERM	ALT_MIN	ALTER/RELOC MINOR
SAN_PERM	ALT_MJR	ALT/REL MAJOR
SAN_PERM	AUTH	AUTH NO SITE VISIT
SAN_PERM	AUTHSITE	AUTH W/SITE VISIT
SAN_PERM	EVALRPT	EXIST SYS EVAL RPT
SAN_PERM	INSTALL	INSTALLATION
SAN_PERM	OTHER	OTHER
SAN_PERM	REFERRAL	REFERRAL
SAN_PERM	RENEWAL	RENEWAL
SAN_PERM	REPRMJR	REPAIR-MAJOR
SAN_PERM	REPRMNR	REPAIR-MINOR
SUR_PART	DEDROAD	DEDICATED ROAD
SUR_PART	NOROAD	NO DEDICATED RD
SUR_SUB	CONDO	CONDOMINIUM
SUR_SUB	PLAT	SUBDIVISION PLAT
SUR_SUB	POST	POST MONUMENTED
TEST	CIFN	FOUNDATION-COM
TEST	CIRF	REROOF-COM
TEST	RAFN	FOUNDATION-RES
TEST	RAFR	REROOF-RES
TEST	SIGN	SIGN